# Report of

# Pre clinical Efficacy evaluation of Oryzanol in Golden Hamsters **(Mesocricetus auratus)**

**Study No: 02/17**

**Volume - I**

**Sponsor**

Ricela
RICE BRAN OIL

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**2018**

## STUDY JUSTIFICATION

Cardiovascular diseases (CVDs) have now become the leading cause of mortality in India. A quarter of all mortality is attributable to CVD. Ischemic heart disease and stroke are the predominant causes and are responsible for >80% of CVD deaths. Hyperlipidemia has been ranked as one of the greatest risk factors contributing to the prevalence and severity of coronary heart diseases. To deal with such high levels, novel alternative use natural plant seeds to minimize toxic side effects in place of existing pharmaceutical agents to improve serum cholesterol levels and thus reduce the risks of atherosclerosis and heart disease.

Rice is widely consumed globally, and rice bran (RB), a coproduct of milled rice, and its oil may have cardiovascular health benefits. Recently, RB has attracted much attention because of its comprehensive nutritional and functional properties. Oryzanol is a class of nonsaponifiable lipids of rice bran oil (RBO). More specifically, oryzanol is a group of ferulic acid esters of triterpene alcohol and plant sterols. This compound is associated with decreasing plasma cholesterol, lowering serum cholesterol, decreasing platelet aggregation. Oryzanol has been attributed to the similar structures of plant sterols and γ-oryzanol to that of cholesterol suggesting that the similarity might be responsible for the hypocholesterolemic effects of RBO. These components might compete with the binding sites of cholesterol and inhibit cholesterol absorption in the intestine, causing a decrease in the cholesterol LDL and triglyceride levels.

Therefore this project was proposed to have a systematic study of the use of oryzanol as cholesterol lowering agent by using standard efficacy models and safety studies. So it becomes mandatory to undertake its efficacy and safety evaluation as per the guidelines of FSSAI and Schedule Y of DCGI.

## SIGNATURE PAGE

18.12.2018

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**Deputy Director (Sr.Grade) &**
**Study Director**
**Coordinator - PCT**
**ICMR-National Institute of Nutrition**

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**Sponsor:**

**Dr. Varun Goyal.**
**Head R&D**
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**Date**

## CONTENTS

**CONTENTS (Contd…)**

## 1.1 DECLARATION

The study titled "To determine the Efficacy of Oryzanol (85-95%) from rice bran oil when administered by oral gavage to Golden Hamsters with Formulation supplied by A.P. ORGANICS Pvt. Ltd. The study has been carried out after taking the IAEC approval (IAEC no - NCLAS/ III-IAEC/ 12/2016/BDK/R22).

18.12.2018

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## 1.2 ABBREVIATIONS

| Abbreviation | Details |
|---|---|
| B.Wt. | Body Weight |
| C | Control |
| C O | Commercial Oryzanol |
| CPCSEA | Committee for the Purpose of Control and Supervision of Experiments on Animals |
| Gm | Gram |
| H | Hour |
| HF-HC | High fat and High cholesterol |
| IAEC | Institutional Animals Ethics Committee |
| ID | Intended Dose |
| Kg | Kilogram |
| M | Male |
| MDI | Maximum Daily Intake |
| Mg | Milligram |
| NCLAS | National Centre for Laboratory Animal Sciences |
| NIN | National Institute of Nutrition |
| No | Number |
| NOAEL | No Observed Adverse Effect Level |
| SD | Standard Deviation |
| SOP | Standard Operating Procedure |
| SPSS | Statistical Package for Social Sciences |
| TC | Test compound |
| X | Times |

## 2.0 Summary

**2.1 Title** : Pre clinical Efficacy evaluation of Oryzanol

**2.2 Study Number** : 02/17

**2.3 Objective** : To determine the Efficacy of Oryzanol (85-95%) from rice bran oil when administered orally through gavague in various dosages (0.5X, 1X, 2X) daily for 45 days as a single dose by oral gavage to Golden Hamsters.

**2.4 Sponsor** : A. P. Organics PVT. LTD.
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**2.6 Test materials details**

**2.6.1 Test materials** :

| Si. no | Test material |
|---|---|
| 1 | Oryzanol (85-95%) from rice bran oil |
| 2 | Commercial Oryzanol |

**2.6.2 Intended use** : Anti - Hyper cholesterolemic activity

**2.6.3 Intended Human dose** : 300 mg/adult

**2.6.4 Route of administration** : Oral through gavages

**2.7 Test species** : Golden Hamsters (Mesocricetus auratus)

**2.8 Test Details :**

<table>
<tr><th rowspan="2">Groups</th><th rowspan="2">No. of animals</th><th colspan="2">Study details</th><th rowspan="2">Study parameters</th></tr>
<tr><th>Therapeutic effect (Day 1 to 60th day)</th><th>Preventive effect (from 61st to 103th day)</th></tr>
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<tr><td rowspan="3">Group-II</td><td rowspan="3">24M</td><td rowspan="3">1. Conditioning<br>2. Feeding High Cholesterol diet* till 60 days</td><td><u>Group-IIa (6M)</u><br>• Continuation of High fat and High Cholesterol diet</td></tr>
<tr><td><u>Group-IIb (6M)</u><br>• Continuation of High fat and High Cholesterol diet + oryzanol -1X ID (5.4 mg/120g Hamsters)</td></tr>
<tr><td><u>Group-IIc (6M)</u><br>• Continuation of High fat and High Cholesterol diet + oryzanol -2X ID (10.8 mg/120g Hamsters)</td></tr>
<tr><td>Group-III</td><td>6M</td><td>1. Conditioning<br>2. Feeding High Cholesterol diet<br>3. Feeding oryzanol-1X ID (5.4 mg/120g Hamsters)</td><td><u>Group-IId (6M)</u><br>• Continuation of High fat and High Cholesterol diet + Commercial oryzanol# -1X ID (5.4 mg/120g Hamsters)</td><td>Continuation of High fat and High Cholesterol diet + oryzanol-1X ID</td></tr>
<tr><td colspan="5">* High Cholesterol diet containing - 90% NIN standard diet +10% coconut oil + 0.1% Cholesterol<br># Commercial oryzanol available at international market.<br>• Dose calculations were done based on the body surface area conversion factor (Paget.G.E. & Barnes.J.M. (1964) Evaluation of Drug Activities: Pharmocometrics eds. Laurence.D.R&Bocharach.A.L., Vol.1. Academic Press, New York).</td></tr>
</table>

**2.9 Methodology**

**2.9.1 Pilot study in Sprague Dawley Rats:**

Previously pilot study w**as** conducted in SD Rats the results are: the supplementation of Oryzanol shows reducing the circulatory cholesterol and increasing HDL cholesterol by reducing the LDL cholesterol. The reducing Triglycerides levels prevent the animals to become diabetic in later days. Considering the above results the Oryzanol can be used as the precise compound for hypocholesterolemia and prevent diabetic complications.

**2.9.2 Efficacy study in Golden Hamsters (Mesocricetus auratus):**

This study has been undertaken to determine the therapeutic effect in two phases (Table-1). The therapeutic effect of Test compound (Oryzanol) was studied in Phase – I. A total of thirty six golden hamsters weighing between 100-120 g are obtained from NCLAS, NIN and conditioned for eight days, followed by randomization of

animals and divided them into three groups. Group-I (6M) was served as negative control with normal standard NIN (AIN 93-G) diet, Group-II (24M) and Group-III (6M) were served as experimental groups and all animals of these two groups (Group-II & III) were fed with high fat and high cholesterol diet (HF-HC) for 60 days. The preventive effect was studied in phase – II, where group-II animals (24M) were divided into four sub groups of six animals in each sub group. Group-IIa animals are continued with HF- HC diet (positive control), group-IIb animals were continued with HF- HC along with 1X ID oryzanol administration, group-IIc animals were continued with HF- HC diet along with 2 X ID oryzanol administrations and group-IId animals were continued with HF-HC diet along with 1 X ID commercial oryzanol administrations (as per the suggestions of Prof. Padmanabhan, Chairman, BIRAC). Group-III animals were fed with HF- HC diet along with 1X ID oryzanol administration. Test material was dissolved in 1 ml of 0.5% CMC (Carboxy Methyl Cellulose) and administered to each hamster once daily through oral gavage route. The treatment was continued till end of the experiment (103$^{rd}$ day).

**2.10 Test material preparation and administration**

**2.10.1 Test material preparation:**

The powdered test materials were supplied by sponsor. This was further dissolved in 0.5% CMC (Carboxy Methyl Celluose). The prepared test material was fed (1 ml/ Hamster) daily for 43 days (after 60 days of HF-HC diet induction) to the respective group of animals.

**2.10.2 Test material administration:**

**2.10.2.1Test Groups: (**HF-HC diet continued to group-II animals)

1. **Group – II a:** This group of animals were administered with 0.5% CMC (1ml) through oral gavage to each Hamster daily for 43 days.
2. **Group – II b:** This group of animals were administered with 1 X oryzanol (1ml) through oral gavage to each Hamster daily for 43 days.
3. **Group – II c:** This group of animals were administered with 2 X oryzanol (1ml) through oral gavage to each Hamster daily for 43 days.
4. **Group – II d:** This group of animals were administered with 1 X Commercial Oryzanol (1ml) through oral gavage to each Hamster daily for 43 days.
5. **Group – III:** This group of animals were administered with 1 X Oryzanol along with HF-HC diet (1ml) through oral gavage to each Guinea pig daily for 43 days.

**2.11 Observations:**

Monitoring of serum total cholesterol levels, LDL, HDL, Triglycerides at 0$^{th}$ day, 15$^{th}$ day, 30$^{th}$ day, 45$^{th}$ day & 60$^{th}$ day of high cholesterol diet exposure period and 0$^{th}$ day, 15$^{th}$

day and 30th day of test compound exposure period. Apart from the routine physical and physiological examinations, body weight gain was recorded bi-weekly till end of the experiment. At the end of the experiment (43rd day of exposure period) animals were euthanized after an overnight fast and 2 ml of blood was withdrawn from retro orbital plexus for estimation of cholesterol, triglycerides and other routine Clinical Chemistry parameters.

**2.12 Data retention:**

The raw data, observation books, specimens, slides etc and details will be kept confidential at the Archiving room for 5 years after the release of final report. The excess test material provided by the company will be stored under appropriate conditions for next 5 years.

**2.13 Statistics:**

Data was compiled and analyzed for any significant differences observed between the groups. The differences between groups were computed using one-way analysis of variance and Dennett's Post Hoc Test comparisons were carried out by SPSS-19 version software.

**2.14 Results:**

- No significant effect on body weight gain were recorded
- Clinical signs, behavioral activity were normal.
- There were no allergenicity symptoms in the animals.
- The results showed a significant reduction in the lipid parameters in oryzanol supplemented groups when compared with remaining groups
- There were no significant changes in organ weights.
- No gross necropsy changes were observed in organs collected at the end of experiment in any group of animals.
- No pre-terminal deaths were recorded in any group of the animals.

**1.18 Conclusion:** The second group (HF-HC diet) animals were divided into 4 groups randomly after completing 60 days of the phase – I experiment, in phase – II the hamsters were supplemented with oryzanol at different dose concentrations (1X, 2X of ID) were compared with high fat and high cholesterol diet (positive control) group as well as hamsters treated with commercial oryzanol. The results showed a significant reduction in the lipid parameters tested in oryzanol supplemented groups.

## 3.0 Study Personnel

**3.1 Director**

Dr. Hemalatha R, M.D; FNAMS, FIUNS
ICMR-NIN.

**3.2 PCT Coordinator & Study Director**

Dr. B. Dinesh Kumar
Scientist 'F'

**3.3 Scientific personnel**

3.3.1 Mr. K. Venkaiah, M.Sc
Scientist 'G', — Study Investigator

3.3.2 Dr. S. Ahmed Ibrahim, Ph.D
Scientist 'E' — Study Investigator

3.3.3 Dr. N. Hari Shankar, Ph.D.
Scientist 'E' — Study Investigator

3.3.4 Dr. M.V. Surekha, M.D
Scientist 'D' — Study Investigator

**3.4 Archives In-charge**

Mrs. K. Sharadha, M.Sc

**Technical Staff**

1. **Clinical chemistry:**

   Mr. N. S. Kumar Reddy, M.Sc

2. **Statistics:**

   Mr. V.Bhaskar, M.Sc. M.C.A

3. **Pre–Clinical Toxicology:**

   1. Mrs. V .Prasanna Lakshmi, M.Sc
   2. Mr. V. Nagendra Babu,B.Sc
   3. Mrs. L. Madavi,B.Sc
   4. Ms. T. Lalitha, B Pharm
   5. Mr.L. Parasuramulu, M.Sc

# STUDY DETAILS

## 4.0 INTRODUCTION

Hyperlipidemia is a highly predictive risk factor for atherosclerosis, coronary artery disease (CAD), and cerebral vascular diseases, the primary causes of mortality in the developing countries like India **(Ghatak & Asthana 1995)**. The allopathic hypolipidemic drugs, although available at large in the market, their popularity has been marred by numerous side effects, severe contraindications and exuberant cost and this has further necessitated the search for alternatives **(Speight 198**7).

It is in this context, effective and better anti-hyperlipidemic drugs for the prevention of cardiovascular diseases, that a global interest has been generated in recent years pertaining to the beneficial nutritive effects of bioactive phytochemicals like Oryzanol, obtained from crude rice bran oil (cRBO) **(Cicero & Gaddi, 2001).**

### RICE BRAN OIL

Rice is widely consumed globally, and rice bran (RB), a coproduct of milled rice, and its oil may have diverse health benefits due to its comprehensive nutritional and functional properties. One of the components, Oryzanol: is a class of nonsaponifiable lipids of rice bran oil (RBO) **(Rogers et al., 1993).** It has been purified and identified as having 10 components: cycloartenyl, 24-methylenecycloartanyl, campesteryl, Δ7-campestenyl, sitosteryl, Δ7- sitostenyl, stigmasteryl, Δ7-stimasteryl, and sitostanyl and campestanyl ferulates **(Xu and Godber, 1999).**

Broadly, oryzanol is a group of ferulic acid esters of triterpene alcohol and plant sterols. This compound is associated with decreasing plasma cholesterol, lowering serum cholesterol, decreasing platelet aggregation. It might compete with the binding sites of cholesterol and inhibit cholesterol absorption in the intestine, causing a decrease in the cholesterol LDL and triglyceride levels **(Hakala et al 2002).**

India is the second largest producer of paddy after China and contributes about 23 per cent of the total world production of paddy, with a huge scope for the development of functional foods and other derivatives. Therefore this project was proposed to have a systematic study of use of oryzanol as a cholesterol lowering agent by using standard efficacy models and safety studies. It becomes mandatory to generate the preclinical safety data on products and non products which are manufactured or the first time by the respective industry in rodents and non rodents as per the guidelines of DBT schedule Y of Drug Controller General of India (DCGI) before it is proposed for clinical trials.

## 5.0 MATERIALS AND METHODS

### 5.1 Test system

| | | | |
|---|---|---|---|
| 5.1.1 | Species and strain | : | Golden Hamster |
| 5.1.2 | Source | : | National Centre for Laboratory Animal Sciences<br>CPCSEA Registration No: 154/1999<br>National Institute of Nutrition, (ICMR)<br>Hyderabad 500 007, Telangana. |
| 5.1.3 | Age | : | 8-10 weeks |
| 5.1.4 | Body weight | : | 140-150g |

### 5.2 Husbandry Practices

**5.2.1 Housing & Caging**:

The animals were housed as a group. In each group of animals, single animal was kept in each cage and were housed in a row in standard poly carbonated open cages with top grill having facilities for feed and drinking water in polycarbonate bottles with stainless steel sipper (*ad libitum* supply).

**5.2.2 Environmental conditions :**

The animals were maintained at 22 ± 2°C, with 15 - 16 air changes per hour. The relative humidity was maintained between 45–55%, with a 12 hr / 12 hr light/dark cycle.

**5.2.3 Room sanitation:**

The floor of the experimental room was swept and all work tops and floor were mopped with disinfectant solution every day throughout the study period

**5.2.4 Feed and water:**

The animals were fed on sterile, pellet feed (standard composition, with macro and micronutrients; Appendix - VIII); purified water, collected through an activated charcoal filter and exposed to UV rays (Aquaguard online water filter-cum-purifier) was provided to the animals *ad libitum*.

### 5.3 Conditioning / Acclimatization of animals:

All animals were acclimatized for a period of 8 days to adopt experimental conditions and to get appropriate body weight gain to initiate treatment. A thorough physical examination was performed before randomization and only healthy animals were used for the study.

**5.4 Randomization:** Randomization ensured that the allocation of treatment to animals/groups was independent of their characteristics and was similar in all the groups. During randomization, care was taken to ensure that base variables were homogenized and were allotted to different groups.

The need for randomization applies not only to the allocation of the animals to the different (control as well as treatment) groups but also to anything that can materially affect the recorded response.

**5.5 Experimental Design:**

**Phase – I (Therapeutic effect)**

A total of thirty six hamsters weighing between 140-150g were obtained from NCLAS and conditioned for seven days and then randomly divided into three groups. Group-I (6M) will be served as Negative control with normal standard NIN diet, Group-II (18M), Group-III (6M) will be served as experimental groups and all animals of these two groups will be fed with high cholesterol diet for 30 days for the confirmation of Hypercholesterolemia. Group-III animals were fed with high cholesterol diet along with 1X ID oryzanol administration.

**Phase – II (Preventive effect)**

The Group-II animals were further divided into four sub groups of six animals in each sub group, group-IIa animals were continued with high cholesterol diet till 43$^{rd}$ day of Phase-II, group-IIb animals were continued with high cholesterol diet along with 1X TD oryzanol administration till 43$^{rd}$ day of Phase-II, group-IIc animals were continued with high cholesterol diet along with 2 X TD oryzanol administrations till 43$^{rd}$ day of Phase-II. Group-IId animals were continued with high cholesterol diet along with commercial oryzanol administrations till 43$^{rd}$ day of Phase-II. Group-III animals were fed with high cholesterol diet along with 1X TD oryzanol administration from day 1 to till end of the experimental period. The test compound provided by sponsor has been dissolved in 0.5% CMC and administered orally through gavague. The dose of test compound for each animal was calculated based on the bodyweight of the animal. The volume of administration is 1.0 ml. At the end of the experiment, animals were euthanized after an overnight fast and 2 ml of blood was drawn from retro orbital plexus for estimation of cholesterol, triglycerides, and other routine Clinical Chemistry parameters.

**5.6 Animal identification**:

Each caged animal was identified by cage label showing study title, study number, species, and strain, date of important events of the study, regular animal ID, unique ID number and group name

| S.No | Group details | Sex | Unique ID No | | No. of animals |
|---|---|---|---|---|---|
| | | | From | To | |
| 1 | Control | M | 20711001 | 20711006 | 6 |
| 2 | Positive control (HF-HC diet) | M | 20721007 | 20721012 | 6 |
| 3 | HF-HC diet + 1 X Oryzanol | M | 20721013 | 20721018 | 6 |
| 4 | HF-HC diet + 2 X Oryzanol | M | 20721019 | 20721024 | 6 |
| 5 | HF-HC diet + Commercial Oryzanol | M | 20721025 | 20721030 | 6 |
| 6 | HF-HC diet + 1 X Oryzanol | M | 20731031 | 20731036 | 6 |

**5.7 Test material Details** : Appendix – IV & V

| | | | |
|---|---|---|---|
| Test Compound | : | Oryzanol powder | Commercial oryzanol |
| Date of manufacture | : | NA | NA |
| Expiry date | : | NA | NA |
| Name of the Supplier | : | Indian Institute of Chemical Technology (IICT) | Indian Institute of Chemical Technology (IICT) |
| Form of dosage | : | Liquid | Liquid |
| Route of administration | : | Oral gavage | Oral gavage |
| Storage Condition | : | 2º C - 8º C | 2º C - 8º C |

**5.8 Test Approvals:**

The study has been conducted after obtaining an approval of Institutional Animal Ethics Committee (IAEC no - NCLAS/ III-IAEC/ 12/2016/BDK/R22) (Appendix –III)

**5.9 Test species and dose calculation of test material**

**5.9.1 Test species:** Golden Hamsters were used in the present study.

**5.9.2 Dose calculation of test material:**

Calculations for Oryzanol powder:

i. The intended dose of Oryzanol for human - 300 mg / 70kg.
ii. The exposure level in Golden hamster were calculated taking into account the human intended dose and converting it on the basis of body surface area

**Formulae: Test material (Oryzanol powder & Commercial oryzanol) =**

**1XTD:**

- Clinical Dose = 300mg/day/adult

  Pre clinical dose (Hamstres) = Clinical dose X conversion factor

  = 300mg X 0.018

  = 5.4mg / 120g Hamsters **/**day

  (or)

  45 mg/Kg Hamsters /day

Therefore 5.4mg of Oryzanol dissolved in 1 ml of 0.5% CMC will be administered to each hamster (120gm) /day

**2XTD:**

- 1XTD = 5.4mg/120gm of hamsters

  2XTD = 5.4X2=10.8 mg/ 120g Hamsters **/**day

  (or)

  90 mg/Kg Hamsters /day

Therefore 10.8mg of Oryzanol dissolved in 1 ml of 0.5% CMC will be administered to each hamster (120gm) /day

| S.No | Intended dose | Dose (mg/120g) | Dose (mg/kg) |
|---|---|---|---|
| 1 | 1XID | 5.4 | 45 |
| 2 | 2XID | 10.8 | 90 |
| 3 | C O-1XID | 5.4 | 45 |

## 6.0 OBSERVATIONS

## 6.1 FUNCTIONAL OBSERVATION BATTERY

The efficacy assessment of the test material according to standard international guidelines included monitoring of the following parameters.

### 6.1.1 LIVE PHASE OF ANIMALS (SOP NO: 10/PHARM/NIN/CO1/LOP/2006/OL)

**General Behavior**

Observations on behavioral abnormalities of the animals viz. active, not active, partially active & hyperactive were recorded and reported bi-weekly.

**Water intake**

The water intake was quantitatively monitored bi-weekly.

**Feed intake**

The feed intake was quantified daily on standard electronic balance and recorded.

**Body weight**

Body weights were recorded at the time of conditioning period, pre and post exposure to the Test material. The recording was done bi-weekly. The weights were recorded using standard electronic balance.

### 6.1.2 CAGE SIDE OBSERVATIONS: (SOP NO: 11/PHARM/NIN/CO1/CSA/2006/02)

The following physiological activities, cage side observation were monitored bi-weekly.

**Home cage activity**

The animals exposed to Test materials were monitored for their home cage activity viz., lying on side, resting, and alertness.

**Faeces excretion**

The faecal output, colour and consistency, were monitored bi-weekly.

**Urine passage& Colour**

Urine passage & urine colour was monitored qualitatively bi-weekly.

**Behaviour while removing from cage**

Behaviour of the animal while removing from cage was recorded to see if the animal was quite easily removed / runs around in the cage / oriented towards the investigator/aggressive or any vocalization.

### 6. 1.3 PHYSICAL EXAMINATION: (SOP NO: 12/PHARM/NIN/CO1/PE/2006/OL)

Physical examinations were made periodically and the following observations were recorded:

**Hair coat**

The physical appearance of hair coat whether it is clean/groomed/soiled was observed bi-weekly.

**Piloerection**

The animals were observed for piloerection.

**Respiration character and Respiratory rate**

Respiration character was observed (viz. normal, decreased, increased, shallow, deep, gasping) bi-weekly using standard procedures.

**Lacrimation**

The presence of eye secretions if any, (slight, moderate & severe) were recorded bi-weekly.

**Salivation**

The salivation (slight, excess etc.) was recorded bi-weekly.

**Eye prominence & eyelid (s) closure**

The appearance of eye (normal, exophthalmus, endophthalmus) and eyelid closure was also observed bi-weekly.

**Convulsions**

Convulsions if any were recorded immediately after the exposure to the Test material and daily during the post exposure phase.

**Biting**

Biting character was also recorded.

**Tremors** The presence of specific tremors (body, head, impaired locomotion) if any was recorded

### 6. 1.4 NEUROLOGICAL EXAMINATION: (SOP No: 13/PHARM/NIN/CO1/NE/2006/OL)

The effect of Test material on neurological activity was evaluated by following parameters.

**Locomotory activity**

The locomotory activity was recorded bi-weekly for all the animals

**Rearing activity**

The rearing activity included didn't rear, rear on hind limbs with and without use of tail was observed bi-weekly for all the animals.

**Static limb position**

The static limb position of the animal was recorded bi-weekly.

**Abnormal gait**

The abnormal gait viz. spastic, waddling, dragging hind limbs etc. was observed bi-weekly.

**Ataxic gait**

The ataxic gait includes falling frequently; walking inability etc. was observed bi-weekly.

**Head position**

The position of the head in the animals was recorded bi-weekly during the monitoring of weight gain.

**Pinna touch response**

The pinna touch response was recorded by touching with a blunt object inside pinna and the response was recorded bi-weekly

### 6. 1.5 ALLERGENICITY: (SOP NO: 14/PHARM/NIN/CO1/A/2006/OL)

Allergenicity profile was observed by following parameters.

**Alopecia**

All experimental animals were observed for hair loss.

**Eye appearance**

Watering and congestion of eyes were observed daily and recorded bi-weekly for all animals.

**6.2 CLINICAL CHEMISTRY:**

Blood samples from the Hamsters, fasted for 12 hrs, were drawn from the orbital plexus, collected in test tubes and centrifuged at 3000 rpm for 10 minutes to separate the Serum for clinical chemistry analyses. Quality Control sample (Precinorm U) at two levels (level 1 and level 2) supplied by Roche were used to establish the precision and accuracy of the analyses.

Serum glucose (GLU), Lipid Profile [Cholesterol (CHOL), Triglyceride (TRI), HDL and LDL] and Liver function test [ALP, AST, ALT] were estimated using cobas c 311 analyzer supplied by Roche at the Food and Drug Toxicology Research Centre, National Institute of Nutrition, Indian Council of Medical Research. All analytical kits were purchased from Roche.

**6.3 GROSS CHANGES IN ORGANS:**

After the experimental period, the Hamsters were fasted overnight (water was provided) and euthanized by using $CO_2$ chamber and subjected to gross necropsy and findings were recorded. External features suggesting any abnormality were also recorded. After opening the chest and abdominal cavities, an in–situ examination of organs was done.

**6.4 STATISTICAL ANALYSIS**

The Department of Statistics undertaken the statistical analysis of the study data, who have been involved in the entire study right from the planning stage.

**6.4.1 Sample size Determination:**

Sample size required for the study was determined as per the protocol of the regulatory authorities.

**6.4.2 Study Design:**

The study design takes care of 'a priori' rationale for the target difference between the treatments and the control. This was designed to detect the difference and also the power to detect such a difference taking into consideration all the available relevant information in the judgment of statistical differences observed for clinical differences. Proper measures were always taken to avoid bias particularly by applying randomization methods, local control methods and blinding of the study.

**6.4.3 Blinding:**

Utmost care was taken to maximize the degree of blindness. The investigators or the analysts who were concerned with this study did not know which treatment was

given to the groups. This was taken care till the project was completed and at the end the code was decoded for the analysis**.**

### 6.4.4 Analyses for different Types of Response variables:

**Presence/absence of a condition**.

Treatment groups were compared with control by Fisher's exact or Chi–square test.

**Ranked: A condition at various discrete levels.**

Between group comparisons by means of Kruskal–Wallis one–way ANOVA and individual group comparisons by Mann–Whitney U test (treatment groups with control) were the method of analysis.

**Continuous variable: takes any value within a given range.**

Heterogeneity of variance was tested by Levene's statistic. After confirming homogeneity, one–way ANOVA was done for between groups significant F–ratio. pair comparison between control and test material groups were tested using Dunnett's Post–hoc analysis were carried out. In case of heterogeneity of variance the data was subjected to Log transformation. Even after transformation if the heterogeneity persisted the distribution free methods (Non parametric methods) were used for analysis of data.

### 6.4.5 Level of Significance:

Two–tailed probability level of 0.05 was set in these experiments for rejecting the null hypothesis.

### 6.4.6 Computer package:

Statistical analysis was carried out on SPSS 15.0 windows version.

### 6.4.7 Statistical methods

**Presence/absence data**

| | | |
|---|---|---|
| Between group comparisons | : | 2Xk Chi–square Test (of k groups) |

**Ranked Data**

| | | |
|---|---|---|
| Individual group comparisons | : | Mann–Whitney U Test |
| Between group comparisons | : | Kruskal–Wallis one–way ANOVA (of k groups) |

**Continuous Data**

| | | |
|---|---|---|
| Test for Homogeneity of Variance | : | Levene's/Bartlett Test |
| Between group comparisons | : | One–way ANOVA |

When confounding effect of other variables was observed with respect to a response variable, stratification methods were applied to account for the confounding effect.

### 6.5 Archiving:

All raw data, documentation, records, specimens, slides, protocols and final reports generated as a result of this study have been kept confidential, inventoried, and archived by the Archiving officer in the Archives Room of the main building of NIN. The retention duration of these records and the excess test material provided by the sponsor kept under appropriate storage conditions for a period of 5 years after the release of final report.

## 7.0 STUDY RESULTS

- Individual animal body weights showed significant decrease with increase in the age. However the pooled data did not show any significant changes in the overall body weight. Similar trends were seen in the feed intake.
- The initial levels of total cholesterol, triglycerides, HDL, LDL, Glucose, AST and ALT did not have significant difference between the groups
- The animals fed with high fat and high cholesterol diet had higher cholesterol levels (maximum 158.5 mg/dl) and it was 2 times high when compare to control
- After 60 days of high fat and high cholesterol diet supplementation there was a significant increase in cholesterol, HDL, LDL, and Triglycerides levels.
- The treatment schedule was done after 60 days of high fat and high cholesterol diet exposed and a significant reduction in Total cholesterol, LDL, and Triglycerides levels was seen.
- The HDL levels were significantly increased with a significant reduction in LDL in the animals treated with Oryzanol which is a beneficial effect in terms of increasing the hypocholesterolemic activity of Oryzanol.
- LDL cholesterol (bad cholesterol) levels are increased significantly in High fat and high cholesterol diet fed animals and the levels were significantly reduced after supplementation of oryzanol (test compound).
- The circulatory levels of triglycerides were significantly reduced in the animals fed with test compound.
- The Oryzanol supplementation reduced total cholesterol levels and increased the HDL levels by reducing the LDL (bad cholesterol).
- The significant reduction in circulatory Triglycerides levels in test compound supplemented groups prevents the animals to become diabetic, after supplementing the high cholesterol diet in the later course/days.

**8.0 Discussion:**

A.P. ORGANICS PVT. LTD. has a formulation (85-95% Oryzanol from rice bran oil) for an efficacious hypercholesterolemic activity. The present study was undertaken to validate the use of oryzanol as a cholesterol lowering agent by using standard efficacy models and safety studies. It further becomes mandatory to generate the preclinical safety data on such products which are manufactured or the first time by the respective industry in rodents and non rodents as per the guidelines of DBT schedule Y of Drug Controller General of India (DCGI) before it is proposed for clinical trials.

**9.0 CONCLUSIONS**:

The second group (High fat diet) animals were divided into 4 groups randomly after completing 60 days of the phase – I experiment so far we have obtained the data for 30 days exposure to the test compound in phase – II and the hamsters were supplemented with oryzanol at different dose concentrations (1X, 2X of TD) were compared with high fat and high cholesterol diet (positive control) group as well as hamsters treated with commercial oryzanol. The results showed a significant reduction in the lipid parameters tested in oryzanol supplemented groups.

**10.0 Study Impression:**

The present study shows the beneficial effect of administering the 85-95% oryzanol from 85-95% rice bran oil for its hypercholesterolemic activity. The decreased levels of cholesterol, LDL and triglycerides demonstrate the therapeutic benefit of the formulation. Also, there was a significant increase in the levels of HDL which is beneficial for the reduction of bad cholesterol.

# 11.0 SUMMARY TABLES

**TABLE – I**

**LIVE PHASE OF ANIMALS (Phase-I)**

| Groups | Observation (Days) | General behaviour (%) | | Water intake (%) | |
|---|---|---|---|---|---|
| | | Active | Not active | Adequate | Inadequate |
| Control | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil |

Values are in percentage ( ) No of animals

*The above observations have been made as per the SOP No.

(10/PHARM/NIN/CO1/LOP/2006/OL)

**TABLE – I**

**LIVE PHASE OF ANIMALS (Contd…) (Phase-II)**

| Groups | Observation (Days) | General behaviour | | Water intake (%) | |
|---|---|---|---|---|---|
| | | Active | Not active | Adequate | Inadequate |
| Control | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | 100 (6) | Nil |

Values are in percentage ( ) No of animals

*The above observations have been made as per the SOP No.

(10/PHARM/NIN/CO1/LOP/2006/OL)

**TABLE – II**

**FEED INTAKE (gm)**

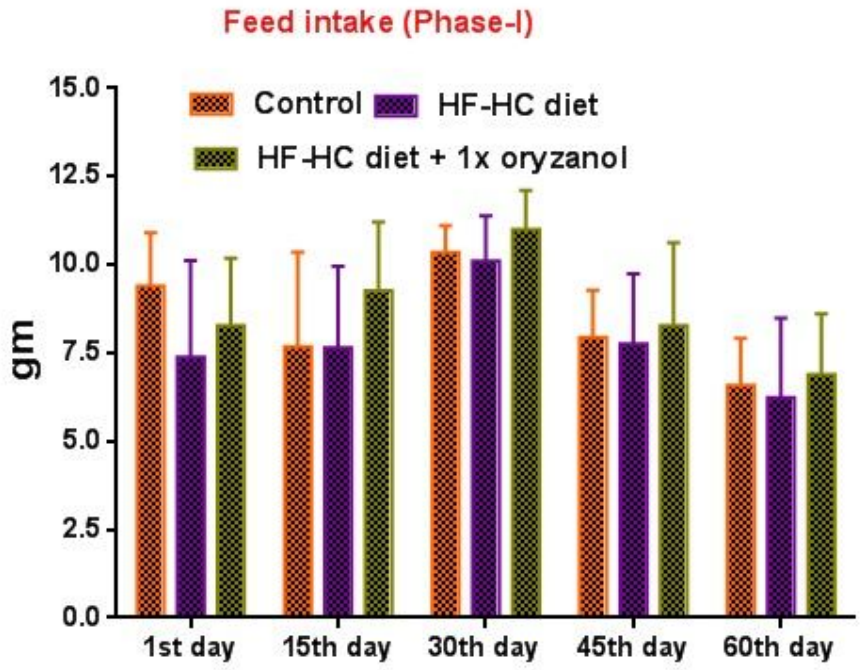
| **Phase-I (Therapeutic effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 9.40 ± 1.505 | 7.38 ± 2.739 | | | | 8.28 ± 1.906 |
| | 15th day | 7.68 ± 2.680 | 7.66 ± 2.303 | | | | 9.27 ± 1.945 |
| | 30th day | 10.35 ± 0.756 | 10.11 ± 1.273 | | | | 11.00 ± 1.114 |
| | 45th day | 7.95 ± 1.334 | 7.76 ± 1.987 | | | | 8.28 ± 2.353 |
| | 60th day | 6.58 ± 1.339 | 6.23 ± 2.263 | | | | 6.98 ± 1.720 |
| **Phase-II (Preventive effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 6.58 ± 1.339 | 5.67 ± 2.255 | 5.92 ± 2.710 | 5.32 ± 2.107 | 8.02 ± 1.170 | 6.98 ± 1.720 |
| | 15th day | 11.18 ± 0.943 | 9.57 ± 0.841 | 9.37 ± 0.935 | 8.45 ± 1.772 | 8.98 ± 2.379 | 9.18 ± 1.395 |
| | 30th day | 9.98 ± 1.288 | 9.65 ± 1.260 | 8.98 ± 1.385 | 8.78 ± 1.298 | 7.93 ± 3.055 | 8.53 ± 0.981 |
| | 43rd day | $9.05^{ad}$ ± 0.914 | $9.22^{ad}$ ± 1.076 | $8.35^{ac}$ ± 1.443 | $7.82^{ac}$ ± 1.341 | $7.25^{bce}$ ± 1.086 | $9.85^{d}$ ± 1.616 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – I**

**FEED INTAKE (gm)**



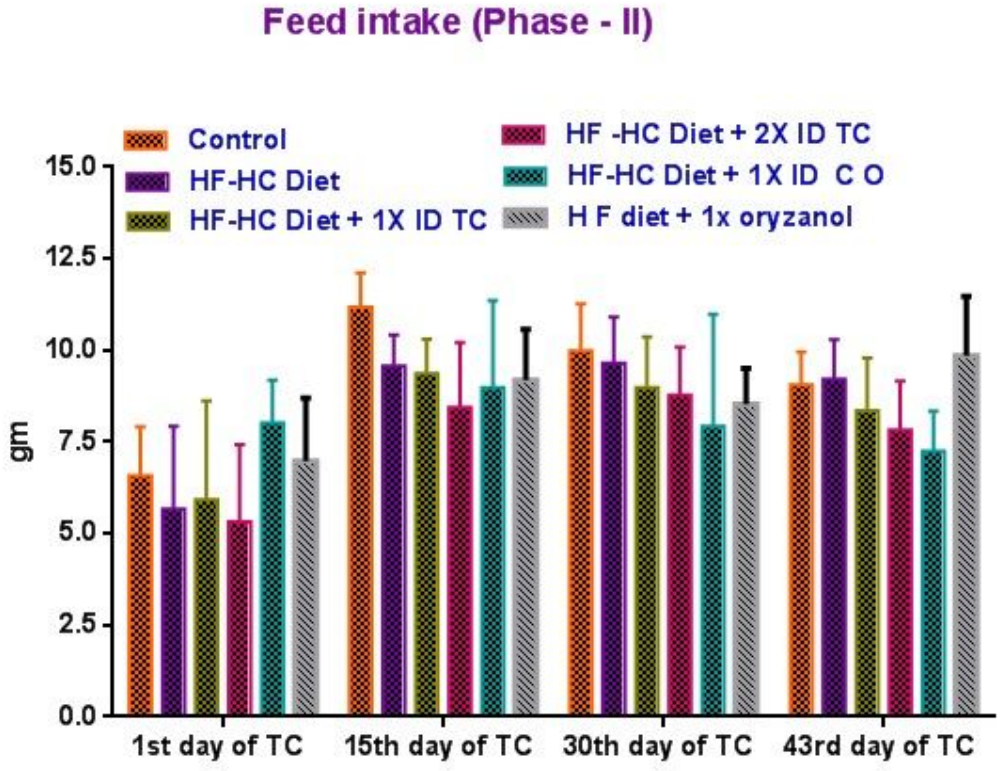



**TABLE – III**

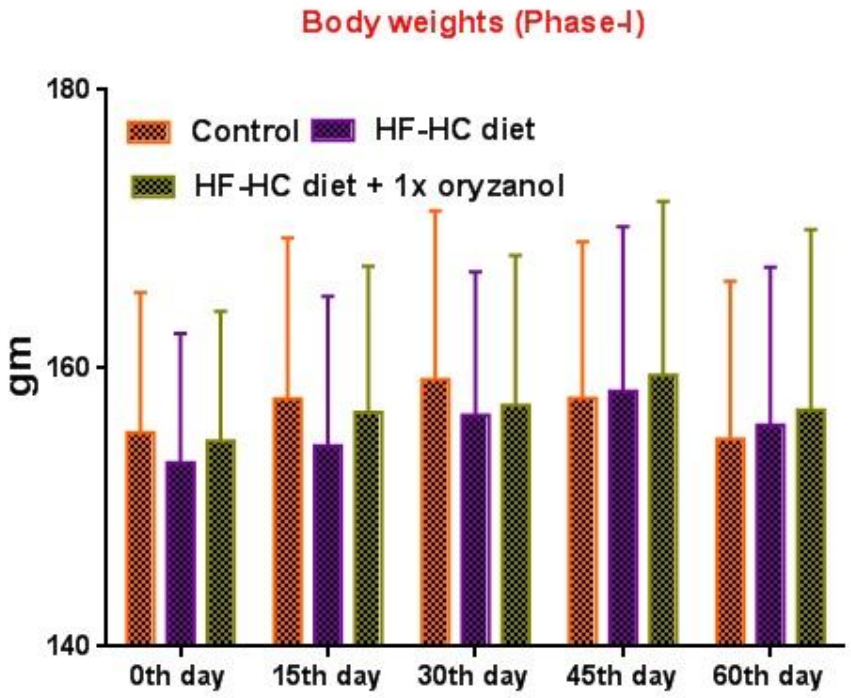
**BODY WEIGHTS (gm)**

| **Phase-I (Therapeutic effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 155.38 ± 10.090 | 153.23 ± 9.286 | | | | 154.78 ± 9.341 |
| | 15th day | 157.82 ± 11.530 | 154.45 ± 10.745 | | | | 156.83 ± 10.491 |
| | 30th day | 159.20 ± 12.112 | 156.64 ± 10.299 | | | | 157.33 ± 10.786 |
| | 45th day | 157.85 ± 11.268 | 158.35 ± 11.836 | | | | 159.50 ± 12.512 |
| | 60th day | 154.90 ± 11.351 | 155.91 ± 11.359 | | | | 157.02 ± 12.936 |
| **Phase-II (Preventive effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 154.90 ± 11.351 | 155.67 ± 14.304 | 162.23 ± 9.772 | 146.70 ± 7.469 | 159.03 ± 8.723 | 157.02 ± 12.936 |
| | 15th day | 156.67 ± 10.687 | 156.50 ± 16.874 | 157.70 ± 11.125 | 157.47 ±11.249 | 157.87 ± 9.785 | 158.65 ± 13.570 |
| | 30th day | 156.73 ± 8.609 | 157.60 ± 17.087 | 158.83 ± 11.167 | 159.15 ± 9.757 | 161.35 ± 11.288 | 158.82 ± 14.329 |
| | 43rd day | 153.20 ± 8.296 | 154.20 ± 15.561 | 154.47 ± 9.793 | 154.72 ± 9.278 | 155.55 ± 11.521 | 156.08 ± 15.204 |

The levels were expressed as mean ± SD ( ) No of animals

**GRAPH – II**

**BODY WEIGHTS (gm)**



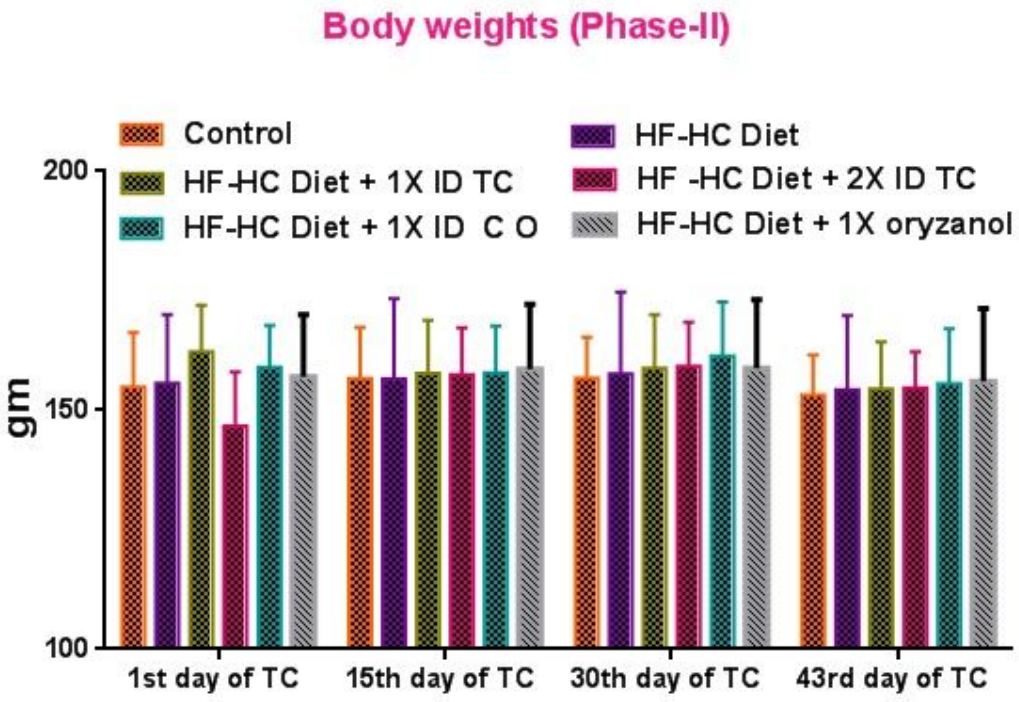



**TABLE – IV**

**CAGE SIDE OBSERVATION**

| Groups | Observation (Days) | Home cage activity | | |
|---|---|---|---|---|
| | | Normal | Lying on side | Alert towards investigator |
| Control | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – IV**

**CAGE SIDE OBSERVATION (Contd…)**

| Groups | Observation (Days) | Home cage activity | | |
|---|---|---|---|---|
| | | Normal | Lying on side | Alert towards investigator |
| Control | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – IV**

**CAGE SIDE OBSERVATION (Contd ...)**

| Groups | Observation (Days) | Faeces Excretion | Faeces colour | Faeces consistency |
|---|---|---|---|---|
| | | Present | Normal | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – IV**

**CAGE SIDE OBSERVATION (Contd...)**

| Groups | Observation (Days) | Faeces Excretion | Faeces colour | Faeces consistency |
|---|---|---|---|---|
| | | Present | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 15th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 30th day of Oryzanol exposure | 100 (6) | Nil | Nil |
| | 43rd day of Oryzanol exposure | 100 (6) | Nil | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – IV**

**CAGE SIDE OBSERVATION (Contd…)**

| Groups | Observation (Days) | Urine output | | Urine color | | Behaviour while removing from cage | |
|---|---|---|---|---|---|---|---|
| | | Present | Absent | Normal | Pale | Animal quiet easily removed | Aggressive |
| Control | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 45th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 60th day of HF-HC Diet | 100 (6) | Nil | 100 (6) | Nil | 100 (6) | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – IV**

**CAGE SIDE OBSERVATION (Contd…)**

| Groups | Observation (Days) | Urine output | | Urine color | | Behaviour while removing from cage | |
|---|---|---|---|---|---|---|---|
| | | Present | Absent | Normal | Pale | Animal quiet easily removed | Aggressive |
| Control | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 15th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 30th day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |
| | 43rd day of Oryzanol exposure | 100 | Nil | 100 (6) | Nil | 100 (6) | Nil |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(11/PHARM/NIN/CO1/CAS/2006/02)

**TABLE – V**

**PHYSICAL EXAMINATION**

| Groups | Observation (Days) | Hair coat | Piloerection | Respiratory Rate |
|---|---|---|---|---|
| | | Cleanly groomed | Absent | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Hair coat | Piloerection | Respiratory Rate |
|---|---|---|---|---|
| | | Cleanly groomed | Absent | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Respiration character | Lacrimation | Salivation |
|---|---|---|---|---|
| | | Normal | Normal | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd...)**

| Groups | Observation (Days) | Respiration character | Lacrimation | Salivation |
|---|---|---|---|---|
| | | Normal | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals.

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Respiration character | Lacrimation | Salivation |
|---|---|---|---|---|
| | | Normal | Normal | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.
(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Respiration character | Lacrimation | Salivation |
|---|---|---|---|---|
| | | Normal | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals.

The above observations have been made as per the SOP No.
(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Eye lid (s) closure | Eye Prominence | Convulsions | Biting | Tremors |
|---|---|---|---|---|---|---|
| | | Eye lids open | Normal | Normal | Absent | Absent |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

Biweekly values are provided in SPSS output.

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – V**

**PHYSICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Eye lid (s) closure | Eye Prominence | Convulsions | Biting | Tremors |
|---|---|---|---|---|---|---|
| | | Eye lids | Normal | Normal | Absent | Absent |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

Biweekly values are provided in SPSS output.

The above observations have been made as per the SOP No.

(12/PHARM/NIN/CO1/PE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION**

| Groups | Observation (Days) | Locomotor Activity | Rearing activity |
|---|---|---|---|
| | | Normal | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 60th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Locomotor Activity | Rearing activity |
|---|---|---|---|
| | | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION (Contd…)**

| Groups | Observation (Days) | Static limb position | Abnormal gait | Ataxic gait |
|---|---|---|---|---|
| | | Normal | None | None |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION (Contd...)**

| Groups | Observation (Days) | Static limb position | Abnormal gait | Ataxic gait |
|---|---|---|---|---|
| | | Normal | None | None |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION (Contd...)**

| Groups | Observation (Days) | Head position | Pinna Touch Response |
|---|---|---|---|
| | | Normal | Normal |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VI**

**NEUROLOGICAL EXAMINATION (Contd...)**

| Groups | Observation (Days) | Head position | Pinna Touch Response |
|---|---|---|---|
| | | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No.

(13/PHARM/NIN/CO1/NE/2006/OL)

**TABLE – VII**

**ALLERGENICITY PROFILE**

| Groups | Observation (Days) | Erythema | Alopecia | Eye appearance |
|---|---|---|---|---|
| | | Absent | Absent | Absent |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No. (14/PHARM/NIN/CO1/A/2006/OL)`

**TABLE – VII**

**ALLERGENICITY PROFILE (Contd…)**

| Groups | Observation (Days) | Head position | Pinna Touch Response |
|---|---|---|---|
| | | Normal | Normal |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

The above observations have been made as per the SOP No. (14/PHARM/NIN/CO1/A/2006/OL)`

**TABLE – VII**

**ALLERGENICITY PROFILE**

| Groups | Observation (Days) | Erythema | Alopecia | Eye appearance |
|---|---|---|---|---|
| | | Absent | Absent | Absent |
| Control | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet + 1XOryzanol | 0th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 45th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |
| | 60th day of HF-HC Diet | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

Biweekly values are provided in SPSS output.

The above observations have been made as per the SOP No.

(14/PHARM/NIN/CO1/A/2006/OL)`

**TABLE – VII**

**ALLERGENICITY PROFILE (Contd…)**

| Groups | Observation (Days) | Erythema | Alopecia | Eye appearance |
|---|---|---|---|---|
| | | Absent | Absent | Absent |
| Control | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+2XID Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1XCO | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| HF-HC Diet+1X Oryzanol | 1st day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 15th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 30th day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |
| | 43rd day of Oryzanol exposure | 100 (6) | 100 (6) | 100 (6) |

Values are in percentage ( ) No of animals

Biweekly values are provided in SPSS output.

The above observations have been made as per the SOP No.

(14/PHARM/NIN/CO1/A/2006/OL)`

**TABLE – VIII**

**GLUCOSE (mg/dl)**

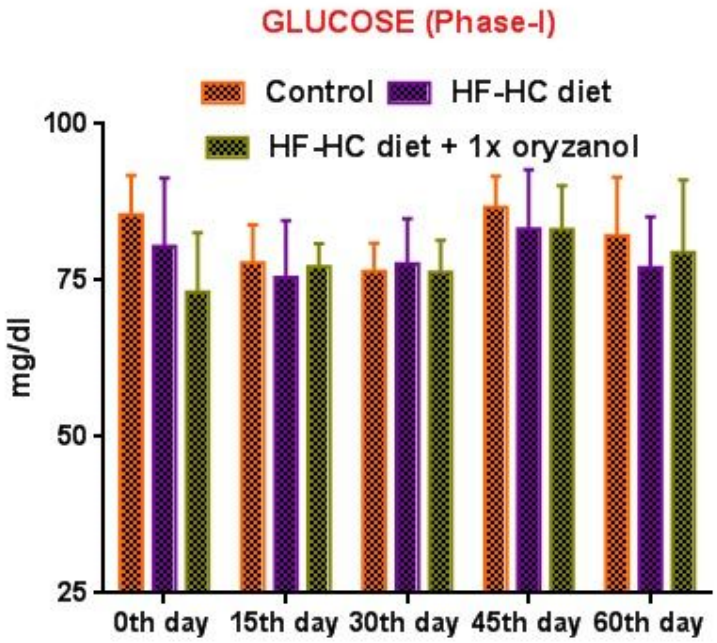
| **Phase-I (Therapeutic effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 85.50 ± 6.348 | 80.46 ± 10.879 | | | | 73.17 ± 9.475 |
| | 15th day | 77.83 ± 6.080 | 75.46 ± 9.146 | | | | 77.17 ± 3.710 |
| | 30th day | 76.50 ± 4.461 | 77.67 ± 7.233 | | | | 76.33 ± 5.046 |
| | 45th day | 86.67 ± 5.007 | 83.25 ± 9.502 | | | | 83.17 ± 6.969 |
| | 60th day | 82.17 ± 9.326 | 77.04 ± 8.121 | | | | 79.50 ± 11.537 |
| **Phase-II (Preventive effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 82.17 ± 9.326 | 73.83 ± 5.154 | 73.83 ± 5.193 | 78.33 ± 9.668 | 82.17 ± 9.908 | 79.50 ± 11.537 |
| | 15th day | 72.17 ± 5.707 | 72.17 ± 5.492 | 71.33 ± 5.502 | 71.00 ± 1.265 | 73.00 ± 1.789 | 72.17 ± 5.193 |
| | 30th day | 64.17 [a] ± 3.656 | 64.33 [a] ± 1.966 | 75.00 [b] ± 9.143 | 66.83 [a] ± 3.312 | 71.00 [b] ± 4.980 | 77.17 [a,b] ± 18.894 |
| | 43rd day | 70.33 [a] ± 6.154 | 84.00 [b] ± 7.483 | 79.50 [b] ± 4.848 | 80.50 [b] ± 7.396 | 70.33 [a] ± 6.154 | 80.17 [b] ± 8.931 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – III**

**GLUCOSE (mg/dl)**



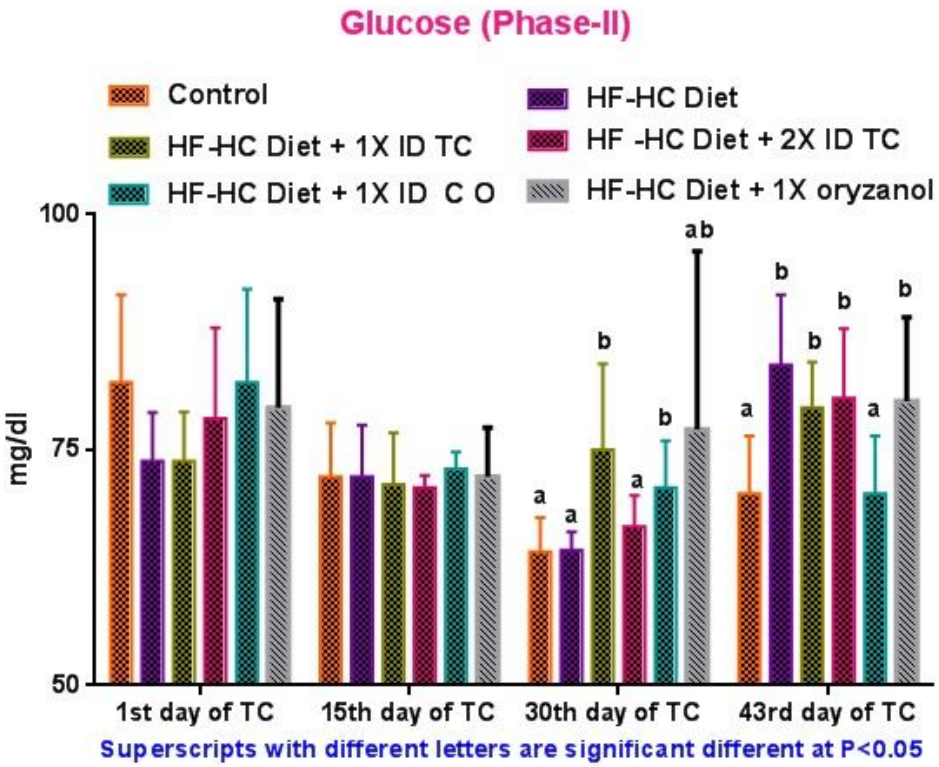



**TABLE – IX**

**CHOLESTROL (mg/dl)**

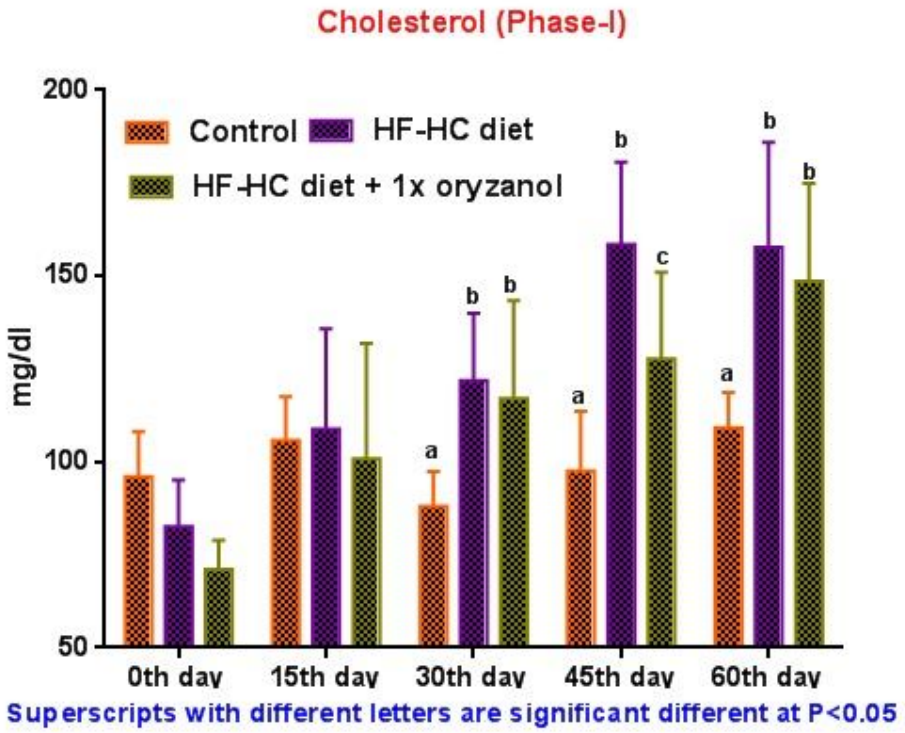
| Phase-I (Therapeutic effect) | Groups ⇨ / Days ⇩ | Control (n=6) | HC + HF Diet group (n=24) | | | | HC-HF Diet +1Xoryzanol (n=6) |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 96.05 [a] ± 12.073 | 82.60 [b] ± 12.575 | | | | 71.10 [c] ± 7.834 |
| | 15th day | 105.78 ± 11.712 | 108.80 ± 20.176 | | | | 100.92 ± 30.958 |
| | 30th day | 88.07 [a] ± 9.357 | 121.90 [b] ± 18.125 | | | | 117.02 [b] ± 26.324 |
| | 45th day | 97.55 [a] ± 16.062 | 158.50 [b] ± 22.130 | | | | 127.63 [c] ± 23.343 |
| | 60th day | 109.13 [a] ± 9.605 | 157.71 [b] ± 28.188 | | | | 148.62 [b] ± 26.335 |
| **Phase-II (Preventive effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 109.13 [a] ± 9.605 | 159.30 [bc] ± 24.403 | 152.05 [bc] ± 36.689 | 143.63 [b] ± 19.255 | 175.85 [c] ± 25.856 | 148.62 [bc] ± 26.335 |
| | 15th day | 99.02 [a] ± 11.419 | 146.32 [b] ± 18.448 | 136.32 [bc] ± 12.057 | 123.40 [c] ± 16.597 | 145.08 [b] ± 17.717 | 120.48 [c] ± 20.591 |
| | 30th day | 93.72 [a] ± 9.066 | 132.62 [b] ± 21.012 | 126.00 [b] ± 12.424 | 122.72 [b] ± 21.841 | 132.18 [b] ± 8.342 | 119.10 [b] ± 21.147 |
| | 43rd day | 90.33 [a] ± 16.079 | 121.77 [b] ± 31.014 | 117.52 [ab] ± 13.810 | 117.14 [ab] ± 24.710 | 120.65 [b] ± 15.972 | 108.70 [ab] ± 31.927 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – IV**

**CHOLESTROL (mg/dl)**



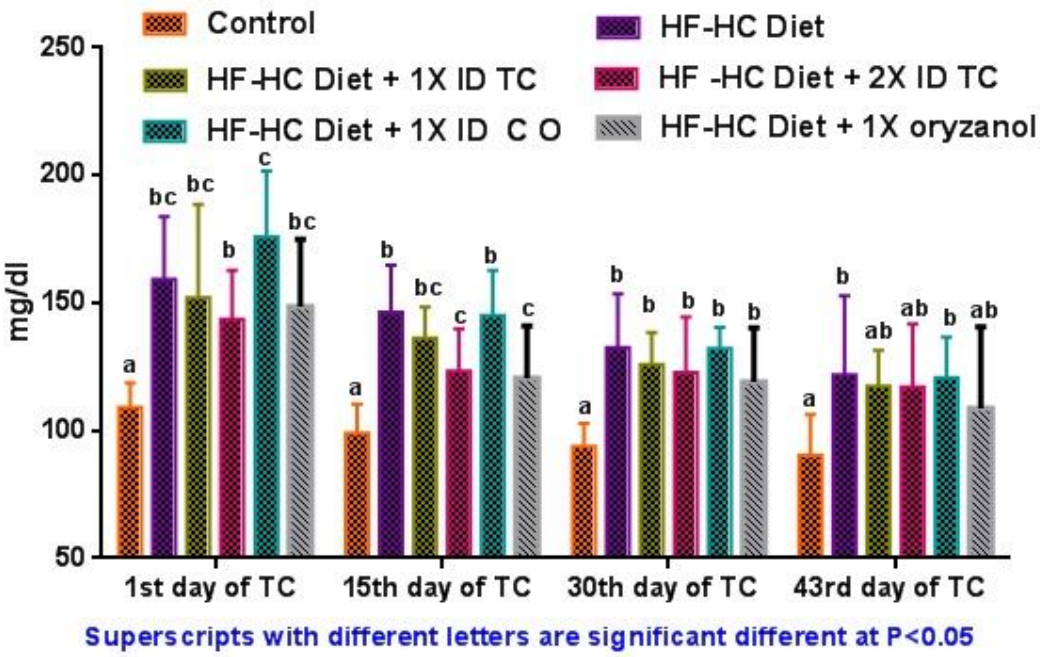



**TABLE – X**

**TRIGLYCERIDES (mg/dl)**

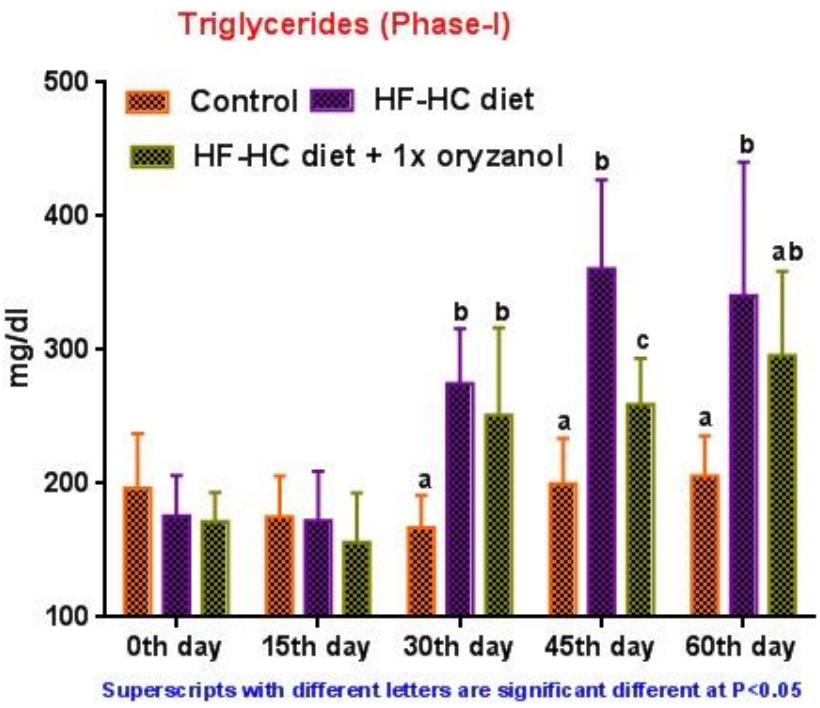
| **Phase-I (Therapeutic effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 196.70 ± 40.768 | 175.65 ± 30.600 | | | | 171.40 ± 22.039 |
| | 15th day | 175.25 ± 30.460 | 172.49 ± 42.517 | | | | 155.93 ± 37.260 |
| | 30th day | 166.95 $^{a}$ ± 24.313 | 274.67 $^{b}$ ± 41.392 | | | | 251.32 $^{b}$ ± 65.202 |
| | 45th day | 199.82 $^{a}$ ± 34.100 | 360.69 $^{b}$ ± 66.527 | | | | 259.38 $^{c}$ ± 34.304 |
| | 60th day | 205.83 $^{a}$ ± 30.067 | 340.56 $^{b}$ ± 100.204 | | | | 295.87 $^{ab}$ ± 63.279 |
| **Phase-II (Preventive effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 205.83 $^{a}$ ± 30.067 | 335.07 $^{b}$ ± 90.766 | 315.92 $^{b}$ ± 96.077 | 315.38 $^{b}$ ±46.296 | 395.88 $^{b}$ ± 146.210 | 295.87 $^{ab}$ ± 63.279 |
| | 15th day | 135.45 $^{a}$ ± 36.734 | 239.45 $^{bc}$ ± 25.538 | 245.12 $^{b}$ ± 23.723 | 205.68 $^{cd}$ ±31.986 | 225.98 $^{bcd}$ ± 51.298 | 187.42 $^{d}$ ± 22.150 |
| | 30th day | 139.43 $^{a}$ ± 27.178 | 264.00 $^{b}$ ± 57.840 | 237.30 $^{bc}$ ± 38.377 | 215.93 $^{bc}$ ±51.301 | 234.73 $^{bc}$ ± `38.646 | 211.70 $^{c}$ ± 33.279 |
| | 43rd day | 151.92 $^{a}$ ± 37.335 | 251.08 $^{b}$ ± 37.776 | 257.35 $^{b}$ ± 58.042 | 226.05 $^{b}$ ±38.774 | 258.63 $^{b}$ ±79.644 | 254.52 $^{b}$ ± 48.049 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – V**

**TRIGLYCERIDES (mg/dl)**



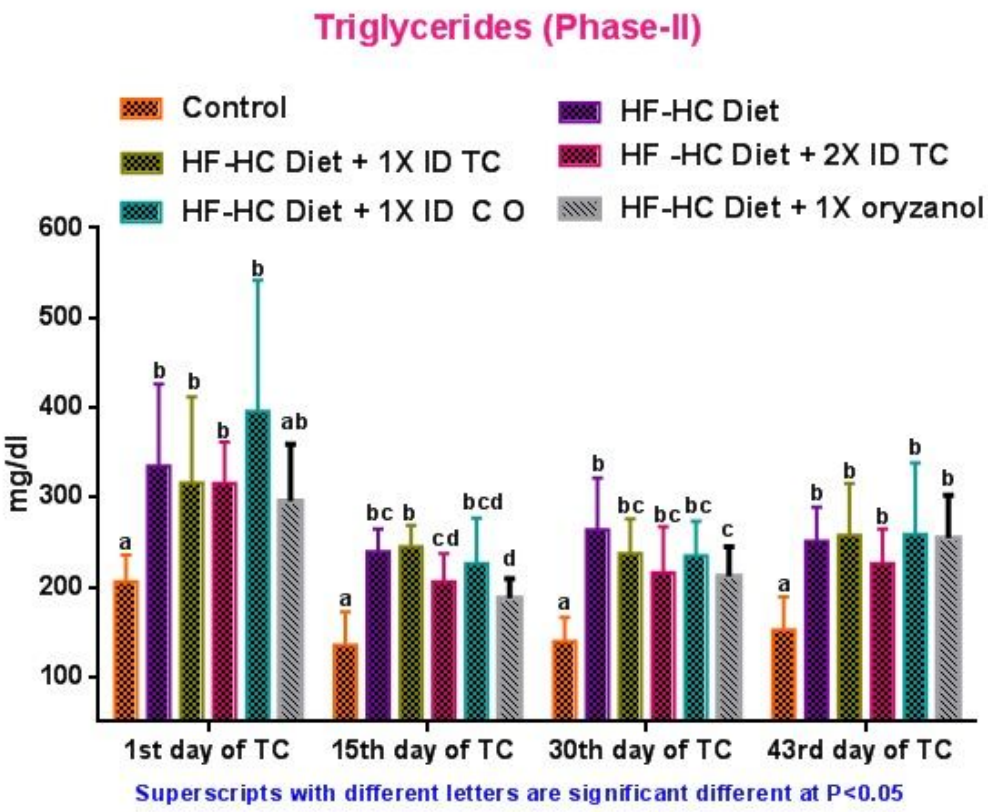



**TABLE – XI**

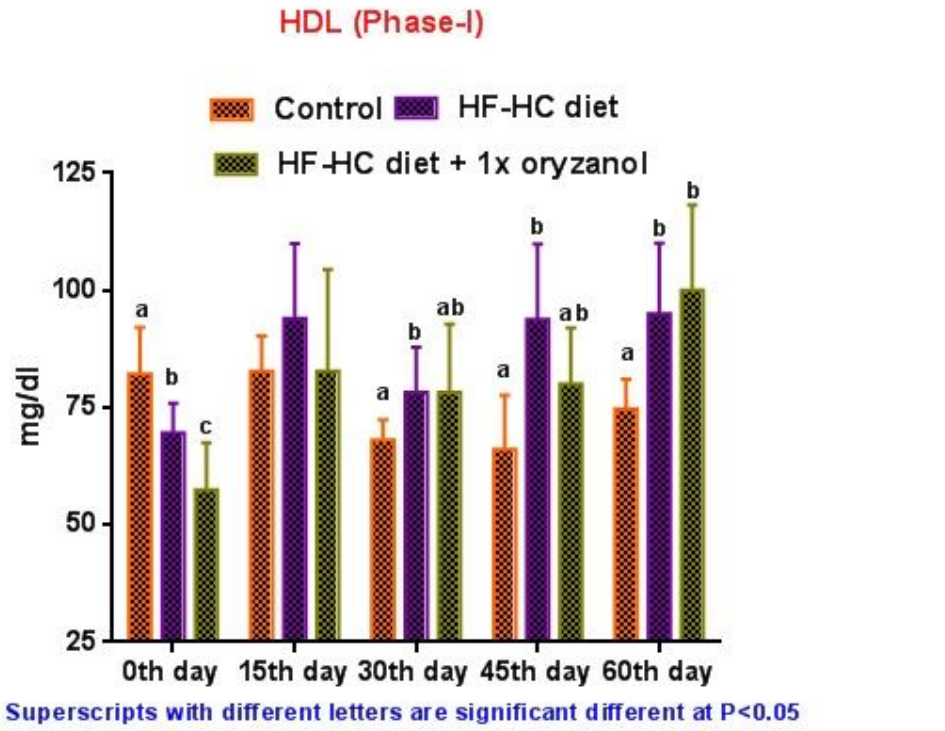
**HDL (mg/dl)**

| Phase-I (Therapeutic effect) | Groups ⇨ / Days ⇩ | Control (n=6) | HC + HF Diet group (n=24) | | | | HC-HF Diet +1Xoryzanol (n=6) |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 82.13 [a] ± 9.947 | 69.60 [b] ± 6.338 | | | | 57.53 [c] ± 9.991 |
| | 15th day | 82.75 ± 7.536 | 94.04 ± 15.146 | | | | 82.75 ± 21.704 |
| | 30th day | 68.07 [a] ± 4.374 | 78.24 [b] ± 9.891 | | | | 78.23 [ab] ± 14.610 |
| | 45th day | 66.07 [a] ± 11.583 | 93.84 [b] ± 16.069 | | | | 80.05 [ab] ± 11.969 |
| | 60th day | 74.70 [a] ± 6.342 | 95.03 [b] ± 15.030 | | | | 99.98 [b] ± 18.228 |
| **Phase-II (Preventive effect)** | **Groups ⇨ / Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 74.70 [a] ± 6.342 | 100.45 [b] ±11.177 | 90.68 [ab] ± 12.399 | 89.63 [ab] ± 15.621 | 99.37 [b] ± 20.024 | 99.98 [b] ± 18.228 |
| | 15th day | 82.18 [a] ± 8.309 | 119.50 [b] ± 16.845 | 110.80 [bc] ± 5.313 | 97.63 [cd] ± 15.237 | 114.70 [b] ± 9.431 | 93.08 [ad] ± 17.885 |
| | 30th day | 76.38 [a] ± 7.130 | 105.68 [b] ± 19.433 | 101.40 [b] ± 8.616 | 96.90 [b] ± 15.683 | 106.80 [b] ± 6.069 | 95.83 [b] ± 17.908 |
| | 43rd day | 55.45 [a] ± 6.382 | 76.73 [b] ± 13.262 | 63.93 [ab] ± 10.027 | 68.93 [ab] ± 16.554 | 67.60 [a] ± 4.699 | 62.08 [a] ± 14.964 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – VI**
**HDL (mg/dl)**



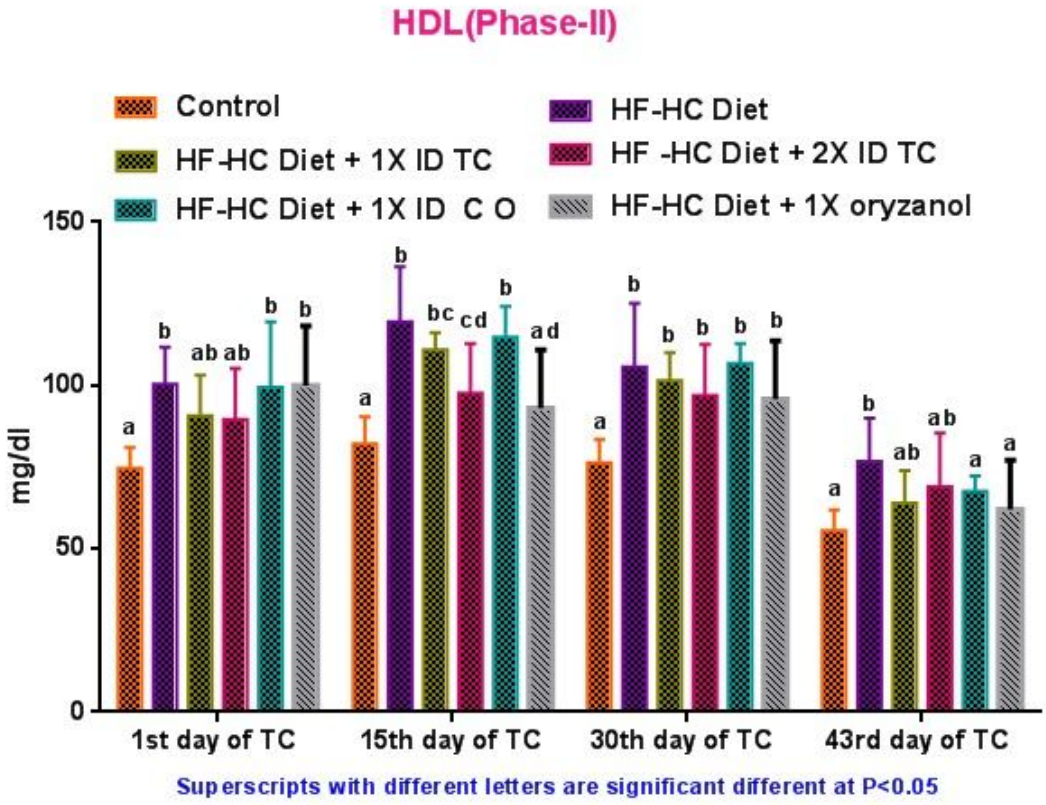



**TABLE – XII**

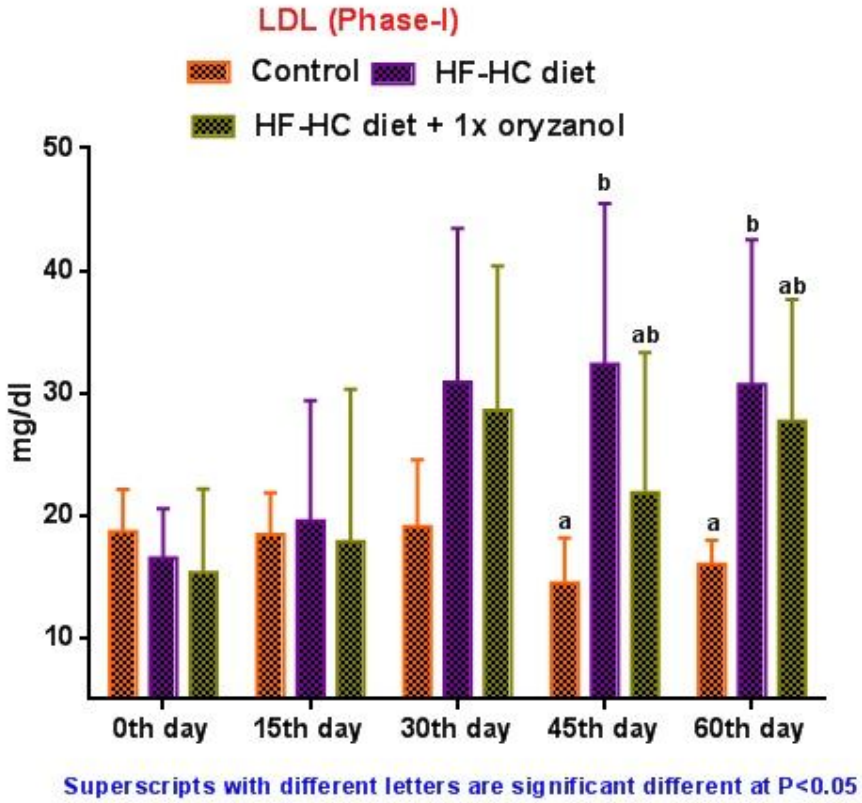
**LDL (mg/dl)**

| **Phase-I (Therapeutic effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 18.67 ± 3.481 | 16.54 ± 4.036 | | | | 15.35 ± 6.846 |
| | 15th day | 18.45 ± 3.438 | 19.57 ± 6.194 | | | | 17.87 ± 12.437 |
| | 30th day | 19.12 ± 5.430 | 30.90 ± 12.526 | | | | 28.60 ± 11.771 |
| | 45th day | 14.48 [a] ± 3.683 | 32.35 [b] ± 13.132 | | | | 21.85 [ab] ± 11.445 |
| | 60th day | 16.03 [a] ± 1.957 | 30.72 [b] ± 11.782 | | | | 27.72 [ab] ± 9.940 |
| **Phase-II (Preventive effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 16.03 [a] ± 1.957 | 28.50 [ab] ± 6.512 | 31.08 [b] ± 21.128 | 27.98 [ab] ± 6.324 | 35.30 [b] ± 8.341 | 27.72 [ab] ± 9.940 |
| | 15th day | 18.85 ± 5.462 | 24.62 ± 6.460 | 23.53 ± 5.876 | 20.18 ± 3.137 | 26.22 ± 5.882 | 18.57 ± 7.771 |
| | 30th day | 16.92 [a] ± 4.339 | 23.60 [ab] ± 7.030 | 20.48 [ab] ± 6.366 | 20.83 [ab] ± 9.194 | 23.23 [b] ± 1.922 | 19.07 [ab] ± 7.859 |
| | 43rd day | 17.33 ± 5.125 | 22.23 ± 5.389 | 18.94 ± 5.111 | 21.01 ± 9.625 | 21.46 ± 3.880 | 18.23 ± 7.470 |

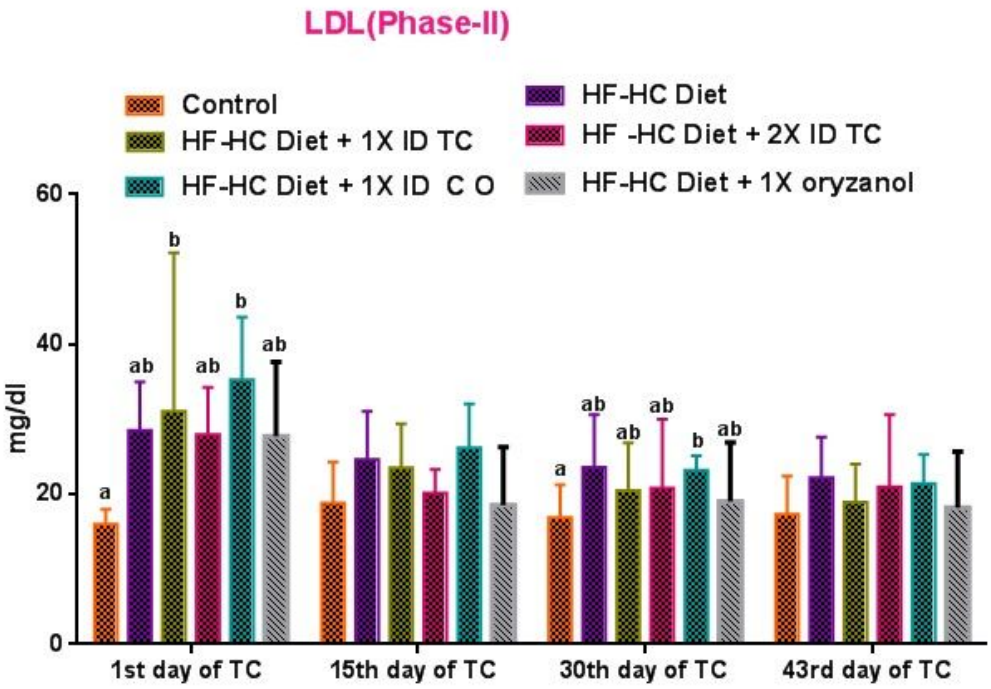
The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – VII**
**LDL (mg/dl)**




Superscripts with different letters are significant different at P<0.05




Superscripts with different letters are significant different at P<0.05

**TABLE – XIII**

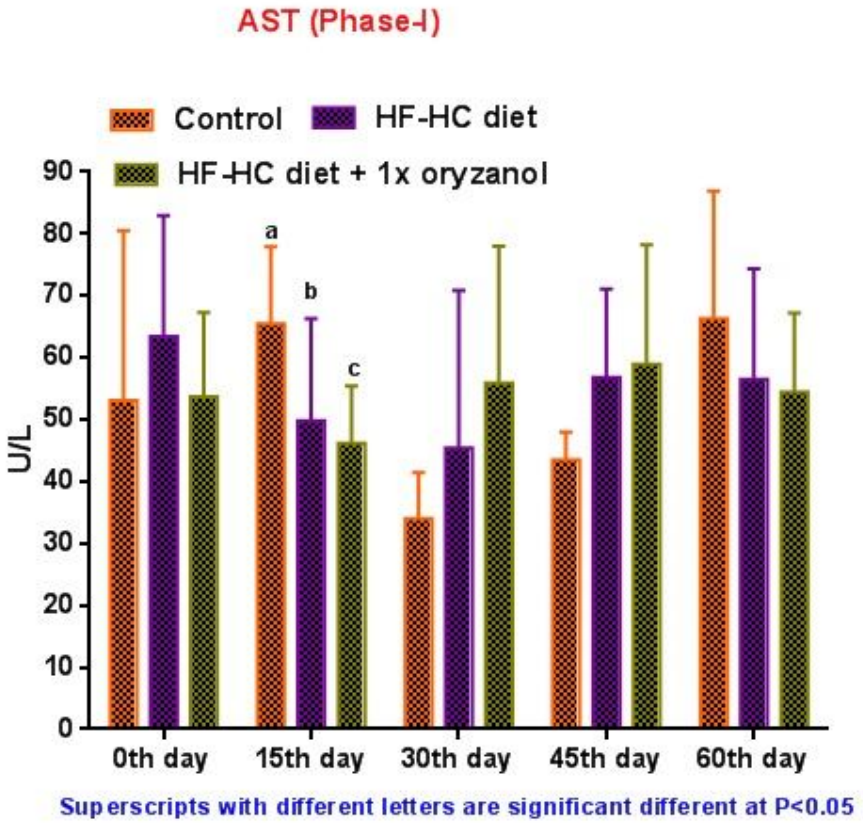
**AST (U/L)**

| **Phase-I (Therapeutic effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 53.08 ± 27.394 | 63.43 ± 19.522 | | | | 53.67 ± 13.579 |
| | 15th day | 65.47 [a] ± 12.471 | 49.86 [b] ± 16.460 | | | | 36.13 [c] ± 9.261 |
| | 30th day | 34.00 ± 7.454 | 45.38 ± 25.490 | | | | 55.93 ± 42.065 |
| | 45th day | 43.53 ± 4.484 | 56.83 ± 14.295 | | | | 58.90 ±19.378 |
| | 60th day | 66.32 ± 20.586 | 56.51 ± 17.865 | | | | 54.43 ± 12.771 |
| **Phase-II (Preventive effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 66.32 ± 20.586 | 61.27 ± 21.932 | 47.32 ± 13.276 | 61.38 ± 20.481 | 56.08 ± 15.302 | 54.43 ± 12.771 |
| | 15th day | 44.17 ± 10.024 | 44.33 ± 9.017 | 39.15 ± 8.761 | 39.27 ± 15.162 | 44.72 ± 18.104 | 38.72 ± 6.778 |
| | 30th day | 40.80 ± 9.701 | 46.32 ± 23.798 | 36.60 ± 17.435 | 33.53 ± 10.736 | 40.13 ± 9.027 | 43.27 ± 13.000 |
| | 43rd day | 64.10 ± 32.585 | 56.20 ± 8.865 | 61.30 ± 16.822 | 51.97 ± 15.740 | 60.48 ±30.312 | 39.88 ± 15.191 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – VIII**
**AST (U/L)**



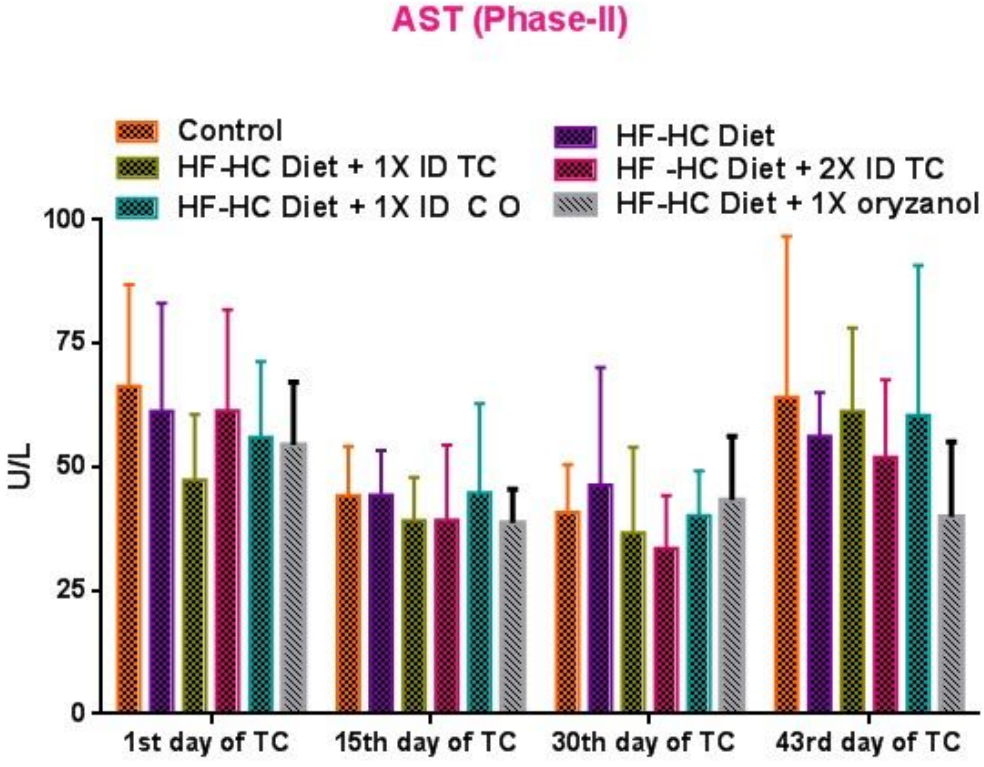



**TABLE – XIV**

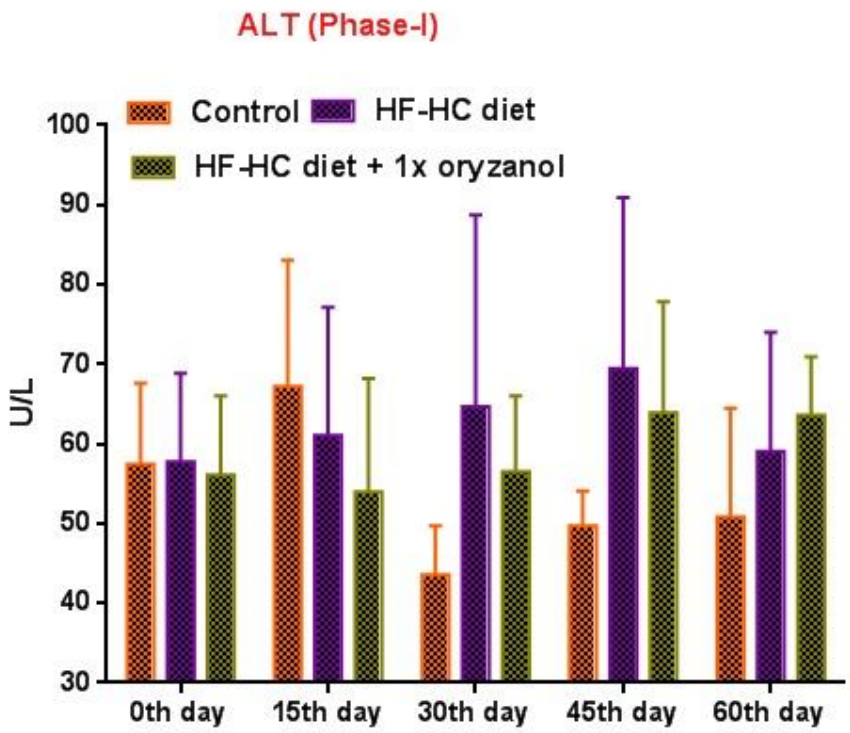
**ALT (U/L)**

| **Phase-I (Therapeutic effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HC + HF Diet group (n=24)** | | | | **HC-HF Diet +1Xoryzanol (n=6)** |
|---|---|---|---|---|---|---|---|
| HF+HC Diet fed period | 0th day | 57.45 ± 10.189 | 57.75 ± 11.111 | | | | 56.08 ± 9.940 |
| | 15th day | 67.22 ± 15.814 | 61.04 ± 16.123 | | | | 53.93 ± 14.281 |
| | 30th day | 43.57 ± 6.128 | 64.66 ± 24.082 | | | | 56.50 ± 9.514 |
| | 45th day | 49.67 ± 4.407 | 69.48 ± 21.432 | | | | 63.88 ± 13.935 |
| | 60th day | 50.85 ± 13.623 | 59.04 ± 14.963 | | | | 63.62 ± 7.320 |
| **Phase-II (Preventive effect)** | **Groups ⇨** / **Days ⇩** | **Control (n=6)** | **HF– HC diet (n=6)** | **HF– HC diet + 1XID (n=6)** | **HF– HC diet + 2XID (n=6)** | **HF– HC diet +1XCO (n=6)** | **HC-HF Diet +1Xoryzanol (n=6)** |
| Test Compound Exposure period | 1st day | 50.85 ± 13.623 | 59.03 ± 20.536 | 51.27 ± 7.104 | 61.47 ± 13.903 | 64.40 ± 15.822 | 63.62 ± 7.320 |
| | 15th day | 43.23 ± 6.555 | 56.92 ± 13.007 | 52.22 ± 9.016 | 52.80 ± 15.512 | 59.80 ± 24.764 | 50.42 ± 4.594 |
| | 30th day | 42.95 [a] ± 5.661 | 54.52 [a] ± 10.136 | 48.42 [a] ± 7.449 | 47.92 [a] ± 20.637 | 56.62 [b] ± 6.235 | 57.08 [b] ± 10.500 |
| | 43rd day | 59.35 ± 28.494 | 65.37 ± 13.582 | 69.58 ± 19.083 | 61.17 ± 10.777 | 53.68 ± 21.063 | 51.10 ± 8.949 |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

**GRAPH – IX**
**ALT (U/L)**



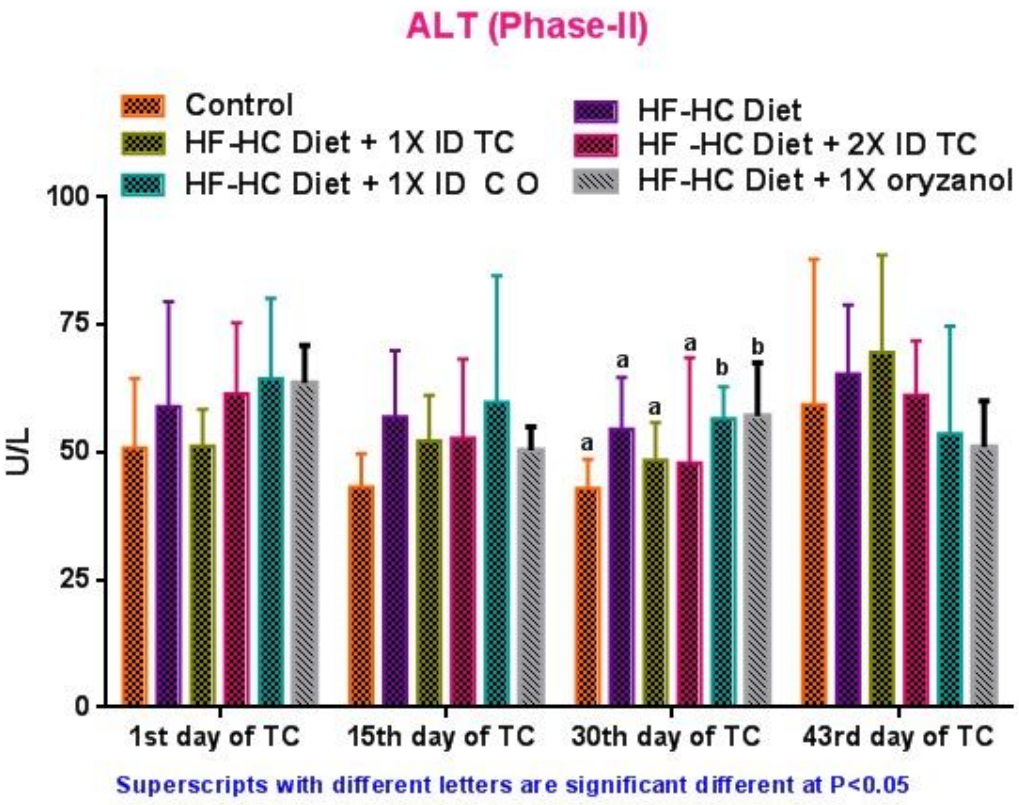



**TABLE – XV**

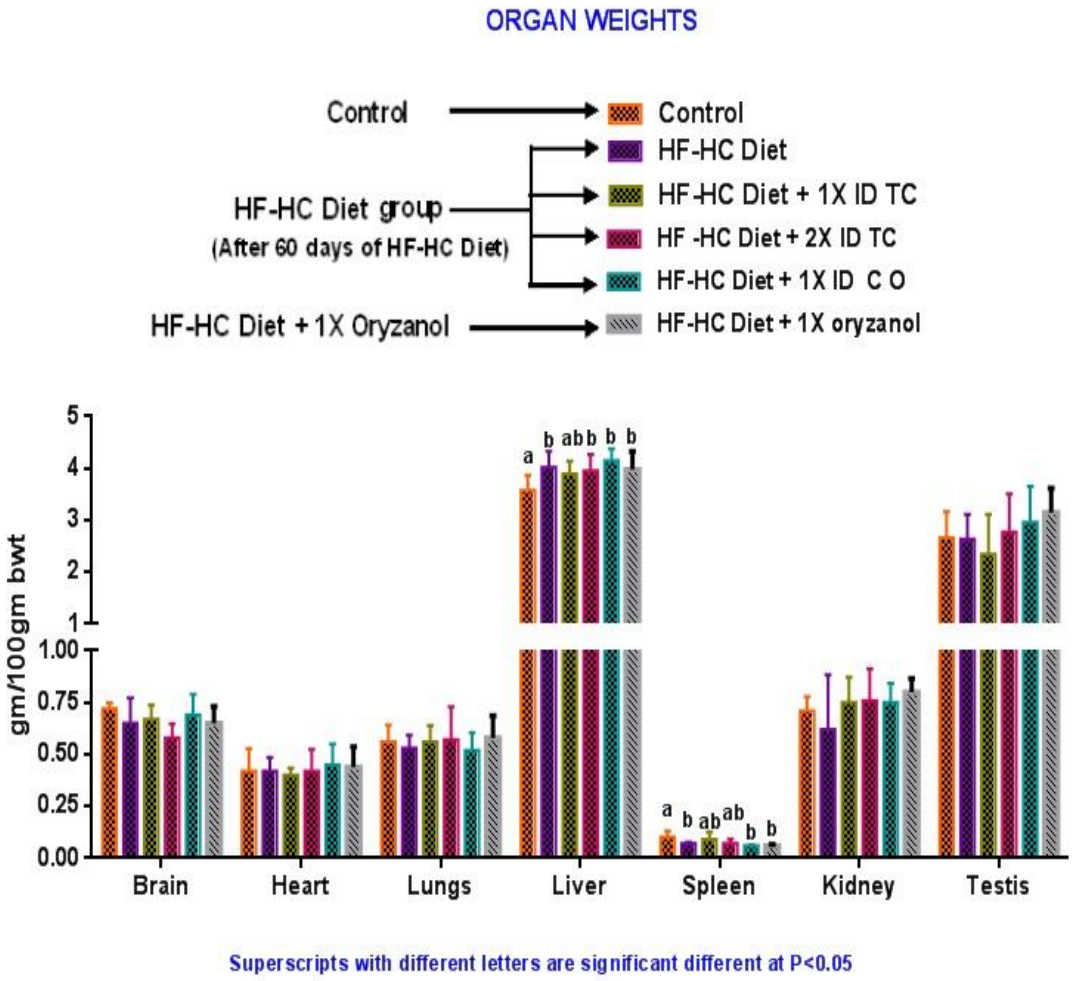
**ORGAN WEIGHTS (gm/100gm BWt)**

| Groups Exposure | Control | HF-HC diet | HF-HC diet + 1XID | HF-HC diet + 2XID | HF-HC diet +1XCO | HC-HF Diet +1Xoryzanol |
|---|---|---|---|---|---|---|
| **Brain** | 0.72 ± 0.029 (6) | 0.65 ± 0.122 (6) | 0.67 ± 0.068 (6) | 0.58 ± 0.067 (6) | 0.69 ± 0.098 (6) | 0.65 ± 0.081 (6) |
| **Heart** | 0.42 ± 0.108 (6) | 0.42 ± 0.066 (6) | 0.40 ± 0.034 (6) | 0.42 ± 0.105 (6) | 0.45 ± 0.100 (6) | 0.44 ± 0.096 (6) |
| **Lungs** | 0.56 ± 0.082 (6) | 0.53 ± 0.063 (6) | 0.56 ± 0.080 (6) | 0.57 ± 0.158 (6) | 0.52 ± 0.084 (6) | 0.58 ± 0.106 (6) |
| **Liver** | 3.57 [a] ± 0.300 (6) | 4.02 [b] ± 0.305 (6) | 3.89 [ab] ± 0.251 (6) | 3.95 [b] ± 0.319 (6) | 4.15 [b] ± 0.232 (6) | 3.98 [b] ± 0.344 (6) |
| **Spleen** | 0.10 [a] ± 0.032 (6) | 0.07 [b] ± 0.007 (6) | 0.09 [ab] ± 0.036 (6) | 0.07 [ab] ± 0.023 (6) | 0.06 [b] ± 0.005 (6) | 0.06 [b] ± 0.007 (6) |
| **Kidney** | 0.71 ± 0.069 (6) | 0.62 ± 0.263 (6) | 0.75 ± 0.123 (6) | 0.76 ± 0.154 (6) | 0.75 ± 0.092 (6) | 0.80 ± 0.067 (6) |
| **Testis** | 2.66 ± 0.510 (6) | 2.63 ± 0.487 (6) | 2.34 ± 0.772 (6) | 2.77 ± 0.732 (6) | 2.96 ± 0.691 (6) | 3.15 ± 0.467 (6) |

The levels were expressed as mean ± SD ( ) No of animals

**Superscripts with different letters are significant different at P<0.05**

## GRAPH – X
## ORGAN WEIGHTS (gm/100gm BWt)




Superscripts with different letters are significant different at P<0.05

**TABLE – XVI**

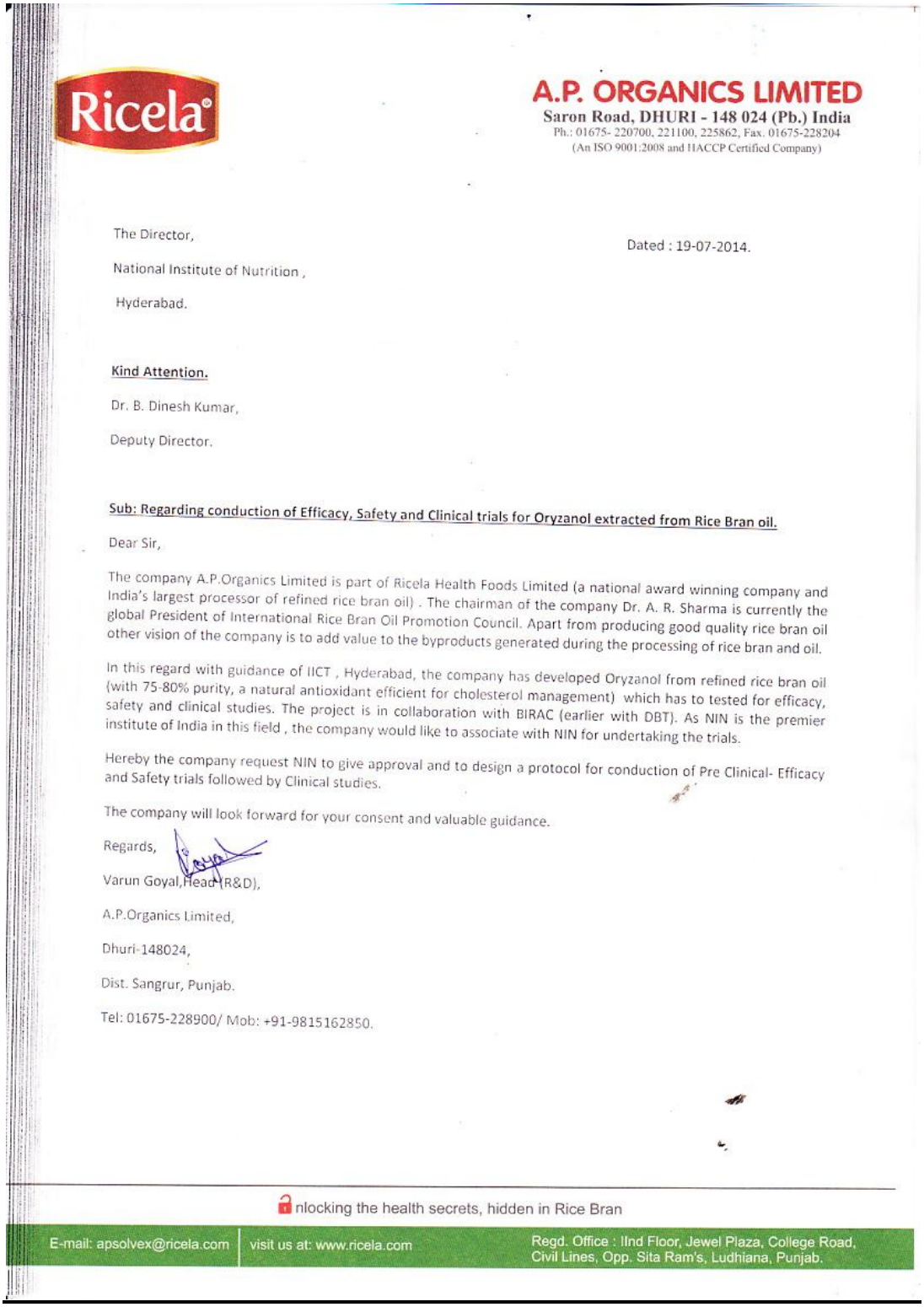
**NECROPSY FINDINGS**

| Groups | Control | HF-HC diet | HF-HC diet + 1XID | HF-HC diet + 2XID | HF-HC diet +1XCO | HC-HF Diet +1Xoryzanol |
|---|---|---|---|---|---|---|
| Sex | **Males** | | | | | |
| Number of Animals | 6 | 6 | 6 | 6 | 6 | 6 |
| Mortality during treatment | 0 | 0 | 0 | 0 | 0 | 0 |
| Moribund and sacrificed | 0 | 0 | 0 | 0 | 0 | 0 |
| Finally sacrificed | 6 | 6 | 6 | 6 | 6 | 6 |
| Examined for gross pathology | 6 | 6 | 6 | 6 | 6 | 6 |
| Gross pathology | 0 | 0 | 0 | 0 | 0 | 0 |
| No Visceral organ pathology | 6 | 6 | 6 | 6 | 6 | 6 |

# 12.0 APPENDICES

# APPENDIX – I

## LETTER FROM SPONSOR



Ricela®

**A.P. ORGANICS LIMITED**
Saron Road, DHURI - 148 024 (Pb.) India
Ph.: 01675- 220700, 221100, 225862, Fax. 01675-228204
(An ISO 9001:2008 and HACCP Certified Company)

The Director,

National Institute of Nutrition ,

Hyderabad.

Dated : 19-07-2014.

Kind Attention.

Dr. B. Dinesh Kumar,

Deputy Director.

Sub: Regarding conduction of Efficacy, Safety and Clinical trials for Oryzanol extracted from Rice Bran oil.

Dear Sir,

The company A.P.Organics Limited is part of Ricela Health Foods Limited (a national award winning company and India's largest processor of refined rice bran oil) . The chairman of the company Dr. A. R. Sharma is currently the global President of International Rice Bran Oil Promotion Council. Apart from producing good quality rice bran oil other vision of the company is to add value to the byproducts generated during the processing of rice bran and oil.

In this regard with guidance of IICT , Hyderabad, the company has developed Oryzanol from refined rice bran oil (with 75-80% purity, a natural antioxidant efficient for cholesterol management) which has to tested for efficacy, safety and clinical studies. The project is in collaboration with BIRAC (earlier with DBT). As NIN is the premier institute of India in this field , the company would like to associate with NIN for undertaking the trials.

Hereby the company request NIN to give approval and to design a protocol for conduction of Pre Clinical- Efficacy and Safety trials followed by Clinical studies.

The company will look forward for your consent and valuable guidance.

Regards,

Varun Goyal, Head (R&D),

A.P.Organics Limited,

Dhuri-148024,

Dist. Sangrur, Punjab.

Tel: 01675-228900/ Mob: +91-9815162850.

nlocking the health secrets, hidden in Rice Bran

E-mail: apsolvex@ricela.com | visit us at: www.ricela.com | Regd. Office : IInd Floor, Jewel Plaza, College Road, Civil Lines, Opp. Sita Ram's, Ludhiana, Punjab.

## APPENDIX – II

## CONSENT LETTER

Website : www.ninindia.org
Fax : 91-40-27019074
E-mail : dirnin_hyd@yahoo.co.in

Phone : Off. 91-40-27018083
Res. 91-40-27171307

राष्ट्रीय पोषण संस्थान
NATIONAL INSTITUTE OF NUTRITION
भारतीय आयुर्विज्ञान अनुसंधान परिषद
Indian Council of Medical Research
जामे उस्मानिया, हैदराबाद - ५०० ००७
Jamai-Osmania P.O. Hyderabad - 500 007, AP

डॉ. कल्पगम पोलासा, पि हेच.डि, एम् बि ए
वैज्ञानिक 'एफ', एवं प्रमुख, एफ .डी.टी.आर.सी
प्रभारी निदेशक

**Dr. Kalpagam Polasa, Ph.D, MBA**
**Scientist 'F' & Head, FDTRC**
**Director Incharge**

Ref: D/NIN/PCT/09/14/
15th September, 2014

Dear Mr. Varun Goyal

Thank you for the visit to our Institute and propose to undertake the collaborative project titled **"Pre clinical Efficacy and Safety evaluation of Oryzanol", A.P.Organics Ltd., Dhuri, Punjab** as Public Private Partnership program at our Centre.

The project will be undertaken with funding source from BIPP of DBT - **Biotechnology Industry Research Assistance Council (BIRAC).** The experimental work will be carried out after obtaining approvals from Institutional Animal Ethical Committee (IAEC), signing MOU and release of grants. I am nominating my colleague Dr. B. Dinesh Kumar, Scientist 'E' & Group Leader - PCT as Study Director to coordinate all activities related to this program. Please find enclosed the minutes of meeting held on 8th September, 2014 at NIN.

The detailed protocol along with budget will be released after receiving the payment of Rs. 50,000/-. The mode of payment should be through cheque or Demand Draft payable in the name of Director, National Institute of Nutrition at any Nationalised bank in Hyderabad or through E-Transfer with information to us (enclosure - I). If you undertake the experimental investigation with us, then the protocol charges will be adjusted at the end of study program.

Thanking you

Yours sincerely

(Kalpagam Polasa)

To
Mr. Varun Goyal
A.P.Organics Ltd.,
Saron Road,
Dhuri(Punjab)
Phone No: 01675-228900

C.C to
1. Dr R. B. N. Prasad, Chief Scientist & Head, Centre for Lipid Research, CSIR-IICT Hyderabad
2. Dr. B. Dinesh Kumar, Scientist 'E' & Group Leader–PCT, NIN (ICMR), Hyderabad

## APPENDIX – III

## IAEC APPROVAL

Email: nclas123@yahoo.com
Website: www.ninindia.org

Telephone 91-40-27197201/ 205 /207
Fax 91-40-27003317
Mobile 91-9849178671

राष्ट्रीय प्रयोगशाला पशु विज्ञान केन्द्र
**NATIONAL CENTRE FOR LABORATORY ANIMAL SCIENCES**
(Regd.No. 154/GO/RBi/SL/99/CPCSEA)
NATIONAL INSTITUTE OF NUTRITION
(Indian Council of Medical Research)
Jamai-Osmania PO, Hyderabad - 500 007, Telangana State

**Dr. P. SURESH**
**Director-in-Charge, NARF-BR**
**Scientist 'F', Head NCLAS &**
**Member Secretary, IAEC**

NCLAS/III-IAEC/12/2016/BDK/R22
Date 13th December, 2016

To
Dr. B. Dinesh Kumar
Principal Investigator
Scientist 'F', Deputy Director (Sr. Gr)
HOD Drug Toxicology Division
NIN, Hyderabad

Dear Dr. B. Dinesh Kumar,

This is with reference to your letter dated 15.11.2016. I wish to inform you that the Institutional Animal Ethics Committee has given **approval** for renewal of your project entitled **"Pre Clinical safety evaluation of Oryzanol"** in its meeting held on 2nd December, 2016. The study number will now be read as **R22/12/2016(P16F/II-IAEC/NIN/2016/6/BDK)/Hamsters-36M.** Please refer the same number when making correspondence related to this project.

The estimate for doing animal experimentation will be given separately.

The necessary forms for indenting animals are available in NCLAS office

Yours faithfully

(Dr. P. Suresh)

## APPENDIX – IV (A)

## TEST MATERIAL DETAILS

| | | | |
|---|---|---|---|
| **1.** | **Name of the Test material** | : | Oryzanol Powder (85-95%) |
| **2.** | **Name of the sponsor** | : | A.P. ORGANICS PVT.LTD.<br>Dhuri-148024, Dist. Sangrur, Punjab.<br>Email: varun.goyal82@gmail.com |
| **3.** | **Name of the supplier** | : | CSIR - Indian Institute of Chemical technology (IICT).<br>Hyderabad. |
| **4.** | **Description** | : | 85-95% Oryzanol from rice bran oil |
| **5.** | **Indication and usage** | : | Hypocholesterolemic activity |
| **6.** | **Intended dietary intake(IDI)** | : | 300mg / adult |
| **7.** | **Physical appearance** | : | Cream-white colour powder |
| **8.** | **Supplied as** | : | The test compound provided in a wide mouth Tarson plastic bottle with a lid |
| **9.** | **Storage** | : | The Test material should be stored at 2-8 $^{o}$ C temperature |

## APPENDIX – IV (A)

## TEST MATERIAL DETAILS (cont..)

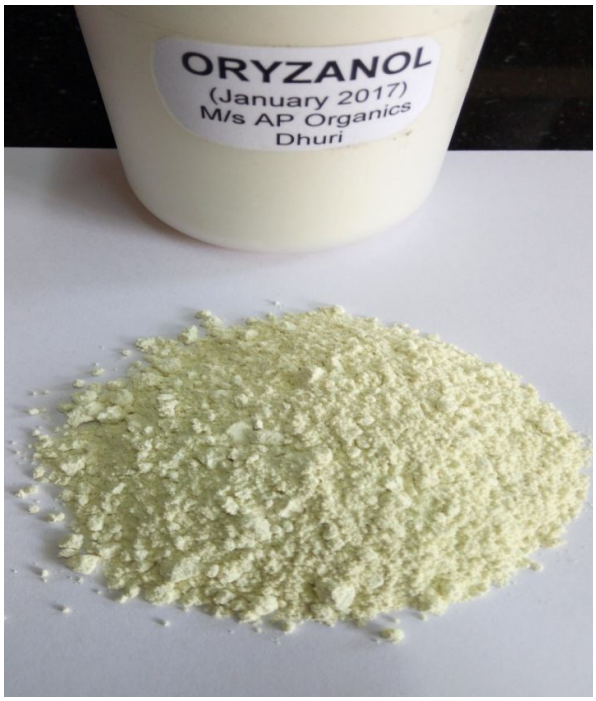
| | | | |
|---|---|---|---|
| **1.** | **Name of the Test material** | : | Pure γ - Oryzanol commercial grade |
| **2.** | **Name of the sponsor** | : | A.P. Organics Pvt.Ltd.<br>Dhuri-148024, Dist. Sangrur, Punjab.<br>Email: varun.goyal82@gmail.com |
| **3.** | **Name of the supplier** | : | CSIR - Indian Institute of Chemical technology (IICT). Hyderabad. |
| **4.** | **Indication and usage** | : | Hypocholesterolemic activity |
| **5.** | **Intended dietary intake(IDI)** | : | 300mg / adult |
| **6.** | **Physical appearance** | : | Cream-white colour powder |
| **7.** | **Supplied as** | : | The test compound provided in a wide mouth Tarson plastic bottle with a lid |
| **8.** | **Storage** | : | The Test material should be stored at 2-8 $^{o}$ C temperature |

## APPENDIX – IV (B)

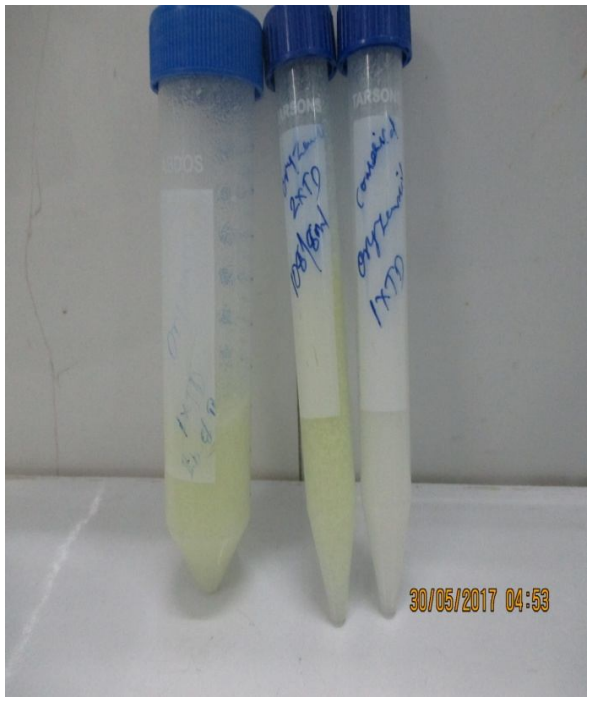
## TEST COMPOUND PHOTOS

**High Fat-High Cholesterol Diet**

**Pure γ - Oryzanol commercial grade**




**Oryzanol Powder**




**Prepared test compound**

## APPENDIX – V (A)

## Certificate of Analysis (COA) - Oryzanol powder

सीएसआईआर-भारतीय रासायनिक प्रौद्योगिकी संस्थान
हैदराबाद - 500 007.भारत
CSIR - Indian Institute of Chemical Technology
Hyderabad - 500 007. INDIA
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)

Ref: IICT\LSTD\IND\63

दिनांक / Dated January 18, 2017

Dr. B. V. S. K. Rao
Principal Technical Officer
Lipid Science and Technology Division

Dr. B. Dinesh Kumar
Scientist 'E' (Deputy Director) &
Co-ordinator – PCT
Food and Drug Toxicology Research Centre (FDTRC)
National Institute of Nutrition (NIN)
Indian Council of Medical Research (ICMR)
Jamia-Osmania P.O., Hyderabad – 500007

Dear Dr. Dinesh Kumar,

I am herewith providing the composition of the Oryzanol sample received from M/s A. P. Organics Ltd., Dhuri

Composition of Oryzanol sample received on 10-01-2017 from M/s A.P. Organics Ltd

| Component | Wt. % |
|---|---|
| Neutral Lipids (like triglycerides, steryl esters, hydrocarbons) | 5.5 |
| Oryzanol | 92 |
| Polar lipids (like phytosterols and partial glycerides) | 2.5 |

With regards

Yours sincerely,

[B.V.S.K. Rao]
Tel (O): 91-40-27191848
Telefax: 91-40-27193370
Email: raobvsk@gmail.com
bhamidipati@iict.res.in

Copy to:

Sri Varun Goyal
A.P. Organics Ltd.,
Saron Road
Dhuri – 148 024
Punjab State

TARNAKA, UPPAL ROAD, HYDERABAD - 500 007. Telangana State, INDIA
दूरभाष / TELEPHONE: 27160123 (18 लाइन / 18 Lines)
www.iictindia.org निदेशक / Director : Fax : 91-40-27160387 व.प्र.नि / COA : Fax : 91-40-27193198

## APPENDIX – V (B)

## Certificate of Analysis (COA) - Pure γ - Oryzanol commercial grade

सीएसआईआर-भारतीय रासायनिक प्रौद्योगिकी संस्थान
हैदराबाद - 500 007.भारत
CSIR - Indian Institute of Chemical Technology
Hyderabad - 500 007. INDIA
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)

Ref: IICT\LSTD\IND\0317

दिनांक / Dated..... March 09, 2017

Dr. B. V. S. K. Rao
Principal Technical Officer
Lipid Science and Technology Division

Dr. B. Dinesh Kumar
Scientist 'E' (Deputy Director) &
Co-ordinator – PCT
Food and Drug Toxicology Research Centre (FDTRC)
National Institute of Nutrition (NIN)
Indian Council of Medical Research (ICMR)
Jamia-Osmania P.O., Hyderabad – 500007

Dear Dr. Dinesh Kumar,

I am herewith providing the composition of the Oryzanol sample received from M/s A. P. Organics Ltd., Dhuri

Composition of Pure γ-oryzanol Commercial Standard received on 08-03-2017 from M/s A.P. Organics Ltd

| Component | Wt. % |
|---|---|
| Neutral Lipids | 3.1 |
| Oryzanol | 94.6 |
| Polar lipids | 2.3 |

With regards

Yours sincerely,

[B.V.S.K. Rao]
Tel (O): 91-40-27191848
Telefax: 91-40-27193370
Email: raobvsk@gmail.com
bhamidipati@iict.res.in

Copy to:
Sri Varun Goyal
A.P. Organics Ltd.,
Saron Road
Dhuri – 148 024
Punjab State

TARNAKA, UPPAL ROAD, HYDERABAD - 500 007. Telangana State, INDIA
दूरभाष / TELEPHONE: 27160123 (18 लाइन / 18 Lines)
www.iictindia.org निदेशक / Director : Fax : 91-40-27160387 व.प्र.नि / COA : Fax : 91-40-27193198

## APPENDIX – VI

## STUDY DESIGN

<table>
<tr><th rowspan="2">Groups</th><th rowspan="2">No. of animals</th><th colspan="2">Study details</th><th rowspan="2">Study parameters</th></tr>
<tr><th>Phase-I (Day 1 to 60th day)</th><th>Phase-II (from 61st to 103rd day)</th></tr>
<tr><td>Group-I</td><td>6M</td><td>1. Conditioning<br>2. Regular diet</td><td>Regular diet</td><td rowspan="5">Monitoring of total cholesterol levels, LDL, HDL, Triglycerides. Glucose, AST, ALT on day 0, 15th day, 30th day,45th day, 60th day,75th day, 90th day& 103rd day in plasma</td></tr>
<tr><td rowspan="3">Group-II</td><td rowspan="3">24M</td><td rowspan="3">1. Conditioning<br>2. Feeding High Cholesterol diet* till 60 days</td><td><u>Group-IIa (6M)</u><br>• Continuation of High Cholesterol diet</td></tr>
<tr><td><u>Group-IIb (6M)</u><br>• Continuation of High Cholesterol diet + oryzanol -1X TD (5.4 mg/120g Hamsters)<br><u>Group-IIc (6M)</u><br>• Continuation of High Cholesterol diet + oryzanol -2X TD (10.8 mg/120g Hamsters)</td></tr>
<tr><td><u>Group-IId (6M)</u><br>• Continuation of High Cholesterol diet + Commercial oryzanol# -1X TD (5.4 mg/120g Hamsters)</td></tr>
<tr><td>Group-III</td><td>6M</td><td>1. Conditioning<br>2. Feeding High Cholesterol diet<br>3. Feeding oryzanol-1X TD (5.4 mg/120g Hamsters)</td><td>Continuation of High Cholesterol diet + oryzanol-1X TD</td></tr>
<tr><td colspan="5">* Higth Cholesterol diet containing - 90% NIN standard diet +10% coconut oil + 0.1% Cholesterol<br># Commercial oryzanol available at international market.<br>• Dose calculations were done based on the body surface area conversion factor (Paget.G.E. &Barnes.J.M. (1964) Evaluation of Drug Activities: Pharmocometrics eds. Laurence.D.R&Bocharach.A.L., Vol.1. Academic Press, New York).</td></tr>
</table>

## APPENDIX – VII

## SOP for Test material Preparation & Administration

- As per the protocol, calculate the required amount of test material to be given to different group of animals.
- Obtain the required amount of test material from the custodian after filling the 'Form– B'.
- Weigh 5gms CMC and mix with 400 ml diluents (HPLC grade water) and stir it well on magnetic stirrer and kept it for overnight and the next day make upto 1000 ml with diluents and label it as 0.5% CMC,.
- Weigh the required amount of test compound according to the animal body weight and mix with 15ml of diluent (0.5%CMC SOLUTION) to each test material (in each bottle) and Sonicate it for 10-15 minutes and label it separately with the group names.
- The strength of the solution is maintained at

| | | |
|---|---|---|
| 1. 1 X ID | - | 5.4 mg /1ml/ 120gm Hamster |
| 2. 2 X ID | - | 10.8mg /1ml /120gm Hamster |
| 3. Commercial Oryzanol | - | 5.4 mg /1ml/ 120gm Hamster |

- Remove the animal from the cage and restrain it carefully.
- Mix each compound well by vortexing before loading into syringe.
- Draw 1ml suspension into 2ml syringe with oral gavage (gauge No.18) and administer to hamster by carefully inserting the needle in the mouth and proceeding via oesophagus.
- After administration monitor the animal for some time.
- Replace the Hamster into its respective cage.
- The above procedure is followed for all the animals of each group till end of the experiment.

## APPENDIX – VIII

## DIET COMPOSITION FOR GUINEA PIG

| S.No. | Materials | Percentage |
|---|---|---|
| 1 | Wheat flour | 22.5 % |
| 2 | Roasted Bengal gram flour | 60 % |
| 3 | Skim Milk Powder | 5 % |
| 4 | Casein | 4 % |
| 5 | Refined Oil | 4 % |
| 6 | Salt Mixture with starch | 4 % |
| 7 | Vitamin & Choline mixture with starch | 0.5 % |

Scale of diet per mouse:

Water and diet were provided *ad libitum*

## SALT MIXTURE COMPOSITION

| S.No. | Minerals | Per 100 Kg diet (g) |
|---|---|---|
| 1 | Dicalcium Phosphate ($Ca_2HPO_4$) | 1250.00 |
| 2 | Calcium carbonate ($CaCO_3$) | 555.00 |
| 3 | Sodium Chloride (NaCl) | 300.00 |
| 4 | Magnesium sulphate (Mg $SO_4$ $7H_20$) | 229.00 |
| 5 | Ferrous Sulphate (Fe $SO_4$ $7H_20$) | 108.00 |
| 6 | Manganese sulphate ($MnSO_4$ $H_20$) | 16.04 |
| 7 | Potassium Iodide (KI) | 1.00 |
| 8 | Zinc sulphate ($ZnS0_4$ $7H_20$) | 2.192 |
| 9 | Copper sulphate ($CuSO_45H_20$) | 1.908 |
| 10 | Cobalt Chloride ($CoCl_26H_20$) | 0.012 |

All minerals together : 2463.15

Starch : 1536.85

=======

4000–00 g

=======

i.e., 4.0 kg for 100 kg of diet

**APPENDIX – VIII**

**VITAMIN MIXTURE COMPOSITION (Contd...)**

| S.No. | Minerals | Per 100 Kg diet (g.) |
|---|---|---|
| 1 | (dl) – $\alpha$ Tocopherol Acetate 50% Dry Powder (E) | 12.0 g |
| 2 | Menadione (K) | 0.15 g |
| 3 | Thiamine ($B_1$) | 1.2 g |
| 4 | Riboflavin ($B_2$) | 0.5 g |
| 5 | Pyridoxine ($B_6$) | 0.6 g |
| 6 | Niacin | 1.0 g |
| 7 | Pantothenic Acid (Calcium Salt) | 1.2 g |
| 8 | Cyanocobalamine ($B_{12}$) | 0.5 mg |
| 9 | Folic Acid | 0.1 g |
| 10 | Para amino Benzoic Acid (PABA) | 10.0 g |
| 11 | Biotin | 40.0 mg |
| 12 | Inositol | 10.0 g |
| 13 | Choline Chloride | 100.0 g |

Total vitamins put together

Starch add to make up : 500.000 g

i.e. 500 g of vitamin mixture is used for every 100 kg of the diet prepared.

**NIN Standard Pellet Diet**

## APPENDIX – VIII

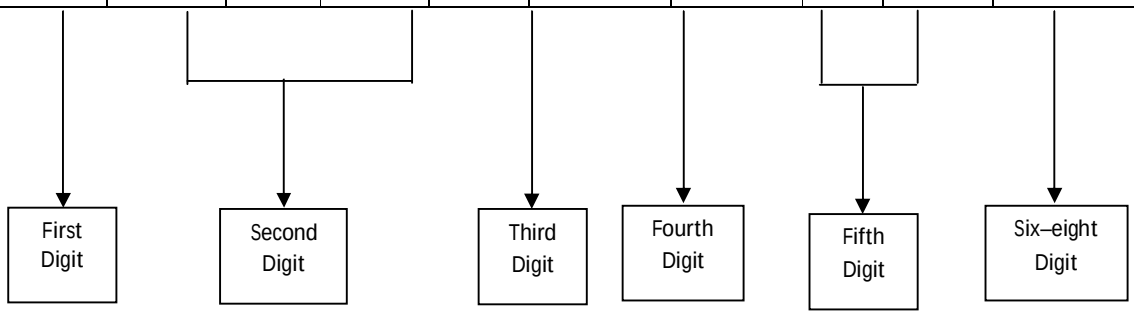
## COMPOSITION of HIGH FAT - HIGH CHOLESTEROL DIET (*W/W%)*

| S.No | **Dietary component** | ***(w/w%)*** |
|---|---|---|
| 1 | Wheat flour | 22.5 % |
| 2 | Roasted Bengal gram flour | 53.9 % |
| 3 | Skimmed Milk Powder | 5 % |
| 4 | Casein | 4 % |
| 5 | Coconut oil | 10 % |
| 6 | Salt Mixture with starch | 4 % |
| 7 | Vitamin & Choline mixture with starch | 0.5 % |
| 8 | Cholesterol | 0.1% |
| Water and diet provided adlibitum | | |

## APPENDIX – IX

## CODE SEQUENCE PROCEDURE

| STUDY NO | STUDY CATEGORY | | | | SPECIES* | TEST GROUPS | SEX | | SERIAL NO. (Animal No.) |
|---|---|---|---|---|---|---|---|---|---|
| | Efficacy | Acute | Sub acute | Chronic | | | Male | Female | |
| 1 – 9 | 0 | 1 | 2 | 3 | 4 (1 – 6) | 1–6 | 1 | 2 | 001 – 999 |




*

| Species name | Code |
|---|---|
| Mice | 1 |
| Monkey | 2 |
| Newzeland mice | 3 |
| Guinea pigs | 4 |
| Rat | 5 |
| Rabbit | 6 |

## APPENDIX – X

## REFERENCES

1. Schedule 'Y' of Drugs & Cosmetics Act, 1940 and Rules, 1945.
2. Conversion factor Human to Rat [Paget.G.E. & Barnes.J.M. (1964) Evaluation of Drug Activities: Pharmocometrics Ed. Laurence.D.R & Bocharach.A.L., Vol.1. Academic Press, New York].
3. M Patel and SN Naik*, gamma – Oryzanol from rice bran oil , A Journal of Scientific & Industrial Research, Vol.63, July 2004,PP 569-578.

# 13.0 SPSS OUT PUT

# LIVE PHASE

| General Behaviour | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | | | |
| | | | | N | % | N | % | N | % | | |
| Observation day | 0th day of HF-HC Diet | General behaviour | Active | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 15th day of HF-HC Diet | General behaviour | Active | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 30th day of HF-HC Diet | General behaviour | Active | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | General behaviour | Active | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | General behaviour | Active | 6 | 100 | 24 | 100 | 6 | 100 | | |

| General Behaviour | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1X ID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | General behaviour | Active | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | General behaviour | Active | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | General behaviour | Active | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | General behaviour | Active | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| Water Intake | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | | | |
| | | | | N | % | N | % | N | % | | |
| Observation day | 0th day of HF-HC Diet | Water intake | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 15th day of HF-HC Diet | Water intake | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 30th day of HF-HC Diet | Water intake | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | Water intake | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | Water intake | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |

| Water Intake | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2 XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Water intake | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Water intake | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Water intake | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Water intake | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

## Feed intake: Phase-I
## Ob day = 0th day of HF-HC Diet

**Descriptives[a]**

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 9.40 | 1.505 | .6143 | 7.821 | 10.979 | 7.8 | 11.5 |
| HF-HC Diet | 24 | 7.38 | 2.739 | .5591 | 6.218 | 8.532 | .8 | 12.5 |
| HF-HC Diet+1XORYZANOL | 6 | 8.28 | 1.906 | .7782 | 6.283 | 10.284 | 6.0 | 11.0 |
| Total | 36 | 7.864 | 2.5241 | .4207 | 7.010 | 8.718 | .8 | 12.5 |

a. Ob day = 0th day of HF-HC

**Test of Homogeneity of Variances[a]**

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 1.805 | 2 | 33 | .180 |

a. Ob day = 0th day of HF-HC

**ANOVA[a]**

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 20.950 | 2 | 10.475 | 1.711 | .196 |
| Within Groups | 202.033 | 33 | 6.122 | | |
| Total | 222.983 | 35 | | | |

a. Ob day = 0th day of HF-HC

## Post Hoc Tests

**Multiple Comparisons[a]**

Dependent Variable: Feed intake
LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | 2.0250 | 1.1294 | .082 | -.273 | 4.323 |
| | HF-HC Diet+1XORYZANOL | 1.1167 | 1.4285 | .440 | -1.790 | 4.023 |
| HF-HC Diet | CONTROL | -2.0250 | 1.1294 | .082 | -4.323 | .273 |
| | HF-HC Diet+1XORYZANOL | -.9083 | 1.1294 | .427 | -3.206 | 1.389 |
| HF-HC Diet+1XORYZANOL | CONTROL | -1.1167 | 1.4285 | .440 | -4.023 | 1.790 |
| | HF-HC Diet | .9083 | 1.1294 | .427 | -1.389 | 3.206 |

a. Ob day = 0th day of HF-HC

## Ob day = 15th day of HF-HC Diet

**Descriptives[a]**

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 7.68 | 2.680 | 1.0940 | 4.871 | 10.496 | 3.1 | 10.2 |
| HF-HC Diet | 24 | 7.66 | 2.303 | .4702 | 6.690 | 8.635 | 2.9 | 10.9 |
| HF-HC Diet+1XORYZANOL | 6 | 9.27 | 1.945 | .7940 | 7.226 | 11.308 | 5.8 | 10.8 |
| Total | 36 | 7.933 | 2.3278 | .3880 | 7.146 | 8.721 | 2.9 | 10.9 |

a. Ob day = 15th day of HF-HC

**Test of Homogeneity of Variances[a]**

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .295 | 2 | 33 | .747 |

a. Ob day = 15th day of HF-HC

**ANOVA[a]**

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 12.802 | 2 | 6.401 | 1.194 | .316 |
| Within Groups | 176.858 | 33 | 5.359 | | |
| Total | 189.660 | 35 | | | |

a. Ob day = 15th day of HF-HC

## Post Hoc Tests

**Multiple Comparisons[a]**

Dependent Variable: Feed intake

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .0208 | 1.0567 | .984 | -2.129 | 2.171 |
| | HF-HC Diet+1XORYZANOL | -1.5833 | 1.3366 | .245 | -4.303 | 1.136 |
| HF-HC Diet | CONTROL | -.0208 | 1.0567 | .984 | -2.171 | 2.129 |
| | HF-HC Diet+1XORYZANOL | -1.6042 | 1.0567 | .138 | -3.754 | .546 |
| HF-HC Diet+1XORYZANOL | CONTROL | 1.5833 | 1.3366 | .245 | -1.136 | 4.303 |
| | HF-HC Diet | 1.6042 | 1.0567 | .138 | -.546 | 3.754 |

a. Ob day = 15th day of HF-HC

## Ob day = 30th day of HF-HC Diet

**Descriptives[a]**

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 10.350 | .7556 | .3085 | 9.557 | 11.143 | 9.2 | 11.4 |
| HF-HC Diet | 24 | 10.108 | 1.2731 | .2599 | 9.571 | 10.646 | 6.0 | 11.7 |
| HF-HC Diet+1XORYZANOL | 6 | 11.000 | 1.1136 | .4546 | 9.831 | 12.169 | 8.8 | 11.7 |
| Total | 36 | 10.297 | 1.1973 | .1995 | 9.892 | 10.702 | 6.0 | 11.7 |

a. Ob day = 30th day of HF-HC

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Feed intake | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .496 | 2 | 33 | .613 |
| a. Ob day = 30th day of HF-HC | | | |

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Feed intake | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 3.836 | 2 | 1.918 | 1.366 | .269 |
| Within Groups | 46.333 | 33 | 1.404 | | |
| Total | 50.170 | 35 | | | |
| a. Ob day = 30th day of HF-HC | | | | | |

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | |
|---|---|---|---|---|---|---|
| Dependent Variable: Feed intake<br>LSD | | | | | | |
| | | | | | 95% Confidence Interval | |
| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .2417 | .5408 | .658 | -.859 | 1.342 |
| | HF-HC Diet+1XORYZANOL | -.6500 | .6841 | .349 | -2.042 | .742 |
| HF-HC Diet | CONTROL | -.2417 | .5408 | .658 | -1.342 | .859 |
| | HF-HC Diet+1XORYZANOL | -.8917 | .5408 | .109 | -1.992 | .209 |
| HF-HC Diet+1XORYZANOL | CONTROL | .6500 | .6841 | .349 | -.742 | 2.042 |
| | HF-HC Diet | .8917 | .5408 | .109 | -.209 | 1.992 |
| a. Ob day = 30th day of HF-HC | | | | | | |

## Ob day = 45th day of HF-HC Diet

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Feed intake | | | | | | | | |
| | | | | | 95% Confidence Interval for Mean | | | |
| | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |
| CONTROL | 6 | 7.950 | 1.3338 | .5445 | 6.550 | 9.350 | 6.5 | 9.5 |
| HF-HC Diet | 24 | 7.758 | 1.9867 | .4055 | 6.919 | 8.597 | 2.0 | 11.2 |
| HF-HC Diet+1XORYZANOL | 6 | 8.283 | 2.3532 | .9607 | 5.814 | 10.753 | 5.0 | 11.0 |
| Total | 36 | 7.878 | 1.9178 | .3196 | 7.229 | 8.527 | 2.0 | 11.2 |
| a. Ob day = 45th day of HF-HC | | | | | | | | |

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Feed intake | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .614 | 2 | 33 | .547 |
| a. Ob day = 45th day of HF-HC | | | |

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Feed intake | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 1.361 | 2 | .680 | .176 | .839 |
| Within Groups | 127.362 | 33 | 3.859 | | |
| Total | 128.722 | 35 | | | |
| a. Ob day = 45th day of HF-HC | | | | | |

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | |
|---|---|---|---|---|---|---|
| Dependent Variable: Feed intake<br>LSD | | | | | | |
| | | | | | 95% Confidence Interval | |
| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .1917 | .8967 | .832 | -1.633 | 2.016 |
| | HF-HC Diet+1XORYZANOL | -.3333 | 1.1342 | .771 | -2.641 | 1.974 |
| HF-HC Diet | CONTROL | -.1917 | .8967 | .832 | -2.016 | 1.633 |
| | HF-HC Diet+1XORYZANOL | -.5250 | .8967 | .562 | -2.349 | 1.299 |
| HF-HC Diet+1XORYZANOL | CONTROL | .3333 | 1.1342 | .771 | -1.974 | 2.641 |
| | HF-HC Diet | .5250 | .8967 | .562 | -1.299 | 2.349 |
| a. Ob day = 45th day of HF-HC | | | | | | |

## Ob day = 60th day of HF-HC Diet

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Feed intake | | | | | | | | |
| | | | | | 95% Confidence Interval for Mean | | | |
| | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |
| CONTROL | 6 | 6.583 | 1.3393 | .5468 | 5.178 | 7.989 | 5.2 | 8.4 |
| HF-HC Diet | 24 | 6.229 | 2.2634 | .4620 | 5.273 | 7.185 | 1.3 | 9.4 |
| HF-HC Diet+1XORYZANOL | 6 | 6.983 | 1.7198 | .7021 | 5.179 | 8.788 | 4.6 | 8.6 |
| Total | 36 | 6.414 | 2.0321 | .3387 | 5.726 | 7.101 | 1.3 | 9.4 |
| a. Ob day = 60th day of HF-HC | | | | | | | | |

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Feed intake | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .621 | 2 | 33 | .543 |
| a. Ob day = 60th day of HF-HC | | | |

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Feed intake | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 2.937 | 2 | 1.468 | .342 | .713 |
| Within Groups | 141.586 | 33 | 4.290 | | |
| Total | 144.523 | 35 | | | |
| a. Ob day = 60th day of HF-HC | | | | | |

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | |
|---|---|---|---|---|---|---|
| Dependent Variable: Feed intake<br>LSD | | | | | | |
| | | | | | 95% Confidence Interval | |
| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .3542 | .9454 | .710 | -1.569 | 2.278 |
| | HF-HC Diet+1XORYZANOL | -.4000 | 1.1959 | .740 | -2.833 | 2.033 |
| HF-HC Diet | CONTROL | -.3542 | .9454 | .710 | -2.278 | 1.569 |
| | HF-HC Diet+1XORYZANOL | -.7542 | .9454 | .431 | -2.678 | 1.169 |
| HF-HC Diet+1XORYZANOL | CONTROL | .4000 | 1.1959 | .740 | -2.033 | 2.833 |
| | HF-HC Diet | .7542 | .9454 | .431 | -1.169 | 2.678 |
| a. Ob day = 60th day of HF-HC | | | | | | |

## Phase-II
## Obs day = 1st day of Oryzanol exposure

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Feed intake | | | | | | | | |
| | | | | | 95% Confidence Interval for Mean | | | |
| | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CONTROL | 6 | 6.583 | 1.3393 | .5468 | 5.178 | 7.989 | 5.2 | 8.4 |
| HF-HC Diet | 6 | 5.667 | 2.2554 | .9207 | 3.300 | 8.034 | 2.4 | 8.7 |
| HF-HC Diet+1XID Oryzanol | 6 | 5.917 | 2.7096 | 1.1062 | 3.073 | 8.760 | 1.3 | 8.5 |
| HF-HC Diet+2XID Oryzanol | 6 | 5.317 | 2.1066 | .8600 | 3.106 | 7.527 | 1.5 | 7.2 |
| HF-HC Diet+1XCO | 6 | 8.017 | 1.1703 | .4778 | 6.788 | 9.245 | 6.8 | 9.4 |
| HF-HC Diet+1XOryzanol | 6 | 6.983 | 1.7198 | .7021 | 5.179 | 8.788 | 4.6 | 8.6 |
| Total | 36 | 6.414 | 2.0321 | .3387 | 5.726 | 7.101 | 1.3 | 9.4 |

a. Ob day = 1st day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .844 | 5 | 30 | .530 |

a. Ob day = 1st day of Oryzanol exposure

ANOVA[a]

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 29.588 | 5 | 5.918 | 1.545 | .206 |
| Within Groups | 114.935 | 30 | 3.831 | | |
| Total | 144.523 | 35 | | | |

a. Ob day = 1st day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Feed intake

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .9167 | 1.1301 | .424 | -1.391 | 3.225 |
| | HF-HC Diet+1XID Oryzanol | .6667 | 1.1301 | .560 | -1.641 | 2.975 |
| | HF-HC Diet+2XID Oryzanol | 1.2667 | 1.1301 | .271 | -1.041 | 3.575 |
| | HF-HC Diet+1XCO | -1.4333 | 1.1301 | .214 | -3.741 | .875 |
| | HF-HC Diet+1XOryzanol | -.4000 | 1.1301 | .726 | -2.708 | 1.908 |
| HF-HC Diet | CONTROL | -.9167 | 1.1301 | .424 | -3.225 | 1.391 |
| | HF-HC Diet+1XID Oryzanol | -.2500 | 1.1301 | .826 | -2.558 | 2.058 |
| | HF-HC Diet+2XID Oryzanol | .3500 | 1.1301 | .759 | -1.958 | 2.658 |
| | HF-HC Diet+1XCO | -2.3500* | 1.1301 | .046 | -4.658 | -.042 |
| | HF-HC Diet+1XOryzanol | -1.3167 | 1.1301 | .253 | -3.625 | .991 |
| HF-HC Diet+1XID | CONTROL | -.6667 | 1.1301 | .560 | -2.975 | 1.641 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Oryzanol | HF-HC Diet | .2500 | 1.1301 | .826 | -2.058 | 2.558 |
| | HF-HC Diet+2XID Oryzanol | .6000 | 1.1301 | .599 | -1.708 | 2.908 |
| | HF-HC Diet+1XCO | -2.1000 | 1.1301 | .073 | -4.408 | .208 |
| | HF-HC Diet+1XOryzanol | -1.0667 | 1.1301 | .353 | -3.375 | 1.241 |
| HF-HC Diet+2XID Oryzanol | CONTROL | -1.2667 | 1.1301 | .271 | -3.575 | 1.041 |
| | HF-HC Diet | -.3500 | 1.1301 | .759 | -2.658 | 1.958 |
| | HF-HC Diet+1XID Oryzanol | -.6000 | 1.1301 | .599 | -2.908 | 1.708 |
| | HF-HC Diet+1XCO | -2.7000* | 1.1301 | .023 | -5.008 | -.392 |
| | HF-HC Diet+1XOryzanol | -1.6667 | 1.1301 | .151 | -3.975 | .641 |
| HF-HC Diet+1XCO | CONTROL | 1.4333 | 1.1301 | .214 | -.875 | 3.741 |
| | HF-HC Diet | 2.3500* | 1.1301 | .046 | .042 | 4.658 |
| | HF-HC Diet+1XID Oryzanol | 2.1000 | 1.1301 | .073 | -.208 | 4.408 |
| | HF-HC Diet+2XID Oryzanol | 2.7000* | 1.1301 | .023 | .392 | 5.008 |
| | HF-HC Diet+1XOryzanol | 1.0333 | 1.1301 | .368 | -1.275 | 3.341 |
| HF-HC Diet+1XOryzanol | CONTROL | .4000 | 1.1301 | .726 | -1.908 | 2.708 |
| | HF-HC Diet | 1.3167 | 1.1301 | .253 | -.991 | 3.625 |
| | HF-HC Diet+1XID Oryzanol | 1.0667 | 1.1301 | .353 | -1.241 | 3.375 |
| | HF-HC Diet+2XID Oryzanol | 1.6667 | 1.1301 | .151 | -.641 | 3.975 |
| | HF-HC Diet+1XCO | -1.0333 | 1.1301 | .368 | -3.341 | 1.275 |

*. The mean difference is significant at the 0.05 level.

a. Ob day = 1st day of Oryzanol exposure

## Ob day = 15th day of Oryzanol exposure

Descriptives[a]

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 11.183 | .9432 | .3851 | 10.193 | 12.173 | 9.7 | 12.6 |
| HF-HC Diet | 6 | 9.567 | .8406 | .3432 | 8.684 | 10.449 | 8.4 | 10.4 |
| HF-HC Diet+1XID Oryzanol | 6 | 9.367 | .9352 | .3818 | 8.385 | 10.348 | 7.9 | 10.7 |
| HF-HC Diet+2XID Oryzanol | 6 | 8.450 | 1.7717 | .7233 | 6.591 | 10.309 | 5.9 | 11.0 |
| HF-HC Diet+1XCO | 6 | 8.983 | 2.3794 | .9714 | 6.486 | 11.480 | 5.8 | 12.3 |
| HF-HC Diet+1XOryzanol | 6 | 9.183 | 1.3949 | .5695 | 7.720 | 10.647 | 7.1 | 10.8 |
| Total | 36 | 9.456 | 1.6210 | .2702 | 8.907 | 10.004 | 5.8 | 12.6 |

a. Ob day = 15th day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1.984 | 5 | 30 | .110 |
| a. Ob day = 15th day of Oryzanol exposure | | | |

ANOVA[a]

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 25.882 | 5 | 5.176 | 2.350 | .065 |
| Within Groups | 66.087 | 30 | 2.203 | | |
| Total | 91.969 | 35 | | | |

a. Ob day = 15th day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Feed intake

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | 1.6167 | .8569 | .069 | -.133 | 3.367 |
| | HF-HC Diet+1XID Oryzanol | 1.8167* | .8569 | .042 | .067 | 3.567 |
| | HF-HC Diet+2XID Oryzanol | 2.7333* | .8569 | .003 | .983 | 4.483 |
| | HF-HC Diet+1XCO | 2.2000* | .8569 | .015 | .450 | 3.950 |
| | HF-HC Diet+1XOryzanol | 2.0000* | .8569 | .026 | .250 | 3.750 |
| HF-HC Diet | CONTROL | -1.6167 | .8569 | .069 | -3.367 | .133 |
| | HF-HC Diet+1XID Oryzanol | .2000 | .8569 | .817 | -1.550 | 1.950 |
| | HF-HC Diet+2XID Oryzanol | 1.1167 | .8569 | .202 | -.633 | 2.867 |
| | HF-HC Diet+1XCO | .5833 | .8569 | .501 | -1.167 | 2.333 |
| | HF-HC Diet+1XOryzanol | .3833 | .8569 | .658 | -1.367 | 2.133 |
| HF-HC Diet+1XID Oryzanol | CONTROL | -1.8167* | .8569 | .042 | -3.567 | -.067 |
| | HF-HC Diet | -.2000 | .8569 | .817 | -1.950 | 1.550 |
| | HF-HC Diet+2XID Oryzanol | .9167 | .8569 | .293 | -.833 | 2.667 |
| | HF-HC Diet+1XCO | .3833 | .8569 | .658 | -1.367 | 2.133 |
| | HF-HC Diet+1XOryzanol | .1833 | .8569 | .832 | -1.567 | 1.933 |
| HF-HC Diet+2XID Oryzanol | CONTROL | -2.7333* | .8569 | .003 | -4.483 | -.983 |
| | HF-HC Diet | -1.1167 | .8569 | .202 | -2.867 | .633 |
| | HF-HC Diet+1XID Oryzanol | -.9167 | .8569 | .293 | -2.667 | .833 |
| | HF-HC Diet+1XCO | -.5333 | .8569 | .538 | -2.283 | 1.217 |
| | HF-HC Diet+1XOryzanol | -.7333 | .8569 | .399 | -2.483 | 1.017 |
| HF-HC Diet+1XCO | CONTROL | -2.2000* | .8569 | .015 | -3.950 | -.450 |
| | HF-HC Diet | -.5833 | .8569 | .501 | -2.333 | 1.167 |
| | HF-HC Diet+1XID Oryzanol | -.3833 | .8569 | .658 | -2.133 | 1.367 |

| | | | | | | |
|---|---|---|---|---|---|---|
| HF-HC Diet+1XOryzanol | HF-HC Diet+2XID Oryzanol | .5333 | .8569 | .538 | -1.217 | 2.283 |
| | HF-HC Diet+1XOryzanol | -.2000 | .8569 | .817 | -1.950 | 1.550 |
| | CONTROL | -2.0000* | .8569 | .026 | -3.750 | -.250 |
| | HF-HC Diet | -.3833 | .8569 | .658 | -2.133 | 1.367 |
| | HF-HC Diet+1XID Oryzanol | -.1833 | .8569 | .832 | -1.933 | 1.567 |
| | HF-HC Diet+2XID Oryzanol | .7333 | .8569 | .399 | -1.017 | 2.483 |
| | HF-HC Diet+1XCO | .2000 | .8569 | .817 | -1.550 | 1.950 |

*. The mean difference is significant at the 0.05 level.

a. Ob day = 15th day of Oryzanol exposure

## Ob day = 30TH day of Oryzanol exposure

Descriptives[a]

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 9.983 | 1.2875 | .5256 | 8.632 | 11.334 | 8.0 | 11.7 |
| HF-HC Diet | 6 | 9.650 | 1.2598 | .5143 | 8.328 | 10.972 | 8.1 | 11.7 |
| HF-HC Diet+1XID Oryzanol | 6 | 8.983 | 1.3848 | .5653 | 7.530 | 10.437 | 7.3 | 11.5 |
| HF-HC Diet+2XID Oryzanol | 6 | 8.783 | 1.2983 | .5300 | 7.421 | 10.146 | 7.5 | 10.5 |
| HF-HC Diet+1XCO | 6 | 7.933 | 3.0553 | 1.2473 | 4.727 | 11.140 | 1.9 | 9.9 |
| HF-HC Diet+1XOryzanol | 6 | 8.533 | .9812 | .4006 | 7.504 | 9.563 | 7.1 | 10.1 |
| Total | 36 | 8.978 | 1.7110 | .2852 | 8.399 | 9.557 | 1.9 | 11.7 |

a. Ob day = 30TH day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 1.087 | 5 | 30 | .388 |

a. Ob day = 30TH day of Oryzanol exposure

ANOVA[a]

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 16.736 | 5 | 3.347 | 1.171 | .346 |
| Within Groups | 85.727 | 30 | 2.858 | | |
| Total | 102.462 | 35 | | | |

a. Ob day = 30TH day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Feed intake

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .3333 | .9760 | .735 | -1.660 | 2.327 |
| | HF-HC Diet+1XID Oryzanol | 1.0000 | .9760 | .314 | -.993 | 2.993 |
| | HF-HC Diet+2XID Oryzanol | 1.2000 | .9760 | .228 | -.793 | 3.193 |
| | HF-HC Diet+1XCO | 2.0500* | .9760 | .044 | .057 | 4.043 |
| | HF-HC Diet+1XOryzanol | 1.4500 | .9760 | .148 | -.543 | 3.443 |
| HF-HC Diet | CONTROL | -.3333 | .9760 | .735 | -2.327 | 1.660 |
| | HF-HC Diet+1XID Oryzanol | .6667 | .9760 | .500 | -1.327 | 2.660 |
| | HF-HC Diet+2XID Oryzanol | .8667 | .9760 | .382 | -1.127 | 2.860 |
| | HF-HC Diet+1XCO | 1.7167 | .9760 | .089 | -.277 | 3.710 |
| | HF-HC Diet+1XOryzanol | 1.1167 | .9760 | .262 | -.877 | 3.110 |
| HF-HC Diet+1XID Oryzanol | CONTROL | -1.0000 | .9760 | .314 | -2.993 | .993 |
| | HF-HC Diet | -.6667 | .9760 | .500 | -2.660 | 1.327 |
| | HF-HC Diet+2XID Oryzanol | .2000 | .9760 | .839 | -1.793 | 2.193 |
| | HF-HC Diet+1XCO | 1.0500 | .9760 | .291 | -.943 | 3.043 |
| | HF-HC Diet+1XOryzanol | .4500 | .9760 | .648 | -1.543 | 2.443 |
| HF-HC Diet+2XID Oryzanol | CONTROL | -1.2000 | .9760 | .228 | -3.193 | .793 |
| | HF-HC Diet | -.8667 | .9760 | .382 | -2.860 | 1.127 |
| | HF-HC Diet+1XID Oryzanol | -.2000 | .9760 | .839 | -2.193 | 1.793 |
| | HF-HC Diet+1XCO | .8500 | .9760 | .391 | -1.143 | 2.843 |
| | HF-HC Diet+1XOryzanol | .2500 | .9760 | .800 | -1.743 | 2.243 |
| HF-HC Diet+1XCO | CONTROL | -2.0500* | .9760 | .044 | -4.043 | -.057 |
| | HF-HC Diet | -1.7167 | .9760 | .089 | -3.710 | .277 |
| | HF-HC Diet+1XID Oryzanol | -1.0500 | .9760 | .291 | -3.043 | .943 |
| | HF-HC Diet+2XID Oryzanol | -.8500 | .9760 | .391 | -2.843 | 1.143 |
| | HF-HC Diet+1XOryzanol | -.6000 | .9760 | .543 | -2.593 | 1.393 |
| HF-HC Diet+1XOryzanol | CONTROL | -1.4500 | .9760 | .148 | -3.443 | .543 |
| | HF-HC Diet | -1.1167 | .9760 | .262 | -3.110 | .877 |
| | HF-HC Diet+1XID Oryzanol | -.4500 | .9760 | .648 | -2.443 | 1.543 |
| | HF-HC Diet+2XID Oryzanol | -.2500 | .9760 | .800 | -2.243 | 1.743 |
| | HF-HC Diet+1XCO | .6000 | .9760 | .543 | -1.393 | 2.593 |

*. The mean difference is significant at the 0.05 level.

a. Ob day = 30TH day of Oryzanol exposure

## Ob day = 43rd day of Oryzanol exposure

Descriptives[a]

Feed intake

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 9.050 | .9138 | .3731 | 8.091 | 10.009 | 7.7 | 9.9 |
| HF-HC Diet | 6 | 9.217 | 1.0759 | .4393 | 8.088 | 10.346 | 7.4 | 10.3 |
| HF-HC Diet+1XID Oryzanol | 6 | 8.350 | 1.4433 | .5892 | 6.835 | 9.865 | 6.7 | 10.6 |
| HF-HC Diet+2XID Oryzanol | 6 | 7.817 | 1.3408 | .5474 | 6.410 | 9.224 | 5.7 | 9.5 |
| HF-HC Diet+1XCO | 6 | 7.250 | 1.0858 | .4433 | 6.111 | 8.389 | 5.5 | 8.2 |
| HF-HC Diet+1XOryzanol | 6 | 9.850 | 1.6159 | .6597 | 8.154 | 11.546 | 7.5 | 12.0 |
| Total | 36 | 8.589 | 1.4753 | .2459 | 8.090 | 9.088 | 5.5 | 12.0 |

a. Ob day = 43rd day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Feed intake

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .471 | 5 | 30 | .795 |

a. Ob day = 43rd day of Oryzanol exposure

ANOVA[a]

Feed intake

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 27.859 | 5 | 5.572 | 3.460 | .014 |
| Within Groups | 48.317 | 30 | 1.611 | | |
| Total | 76.176 | 35 | | | |

a. Ob day = 43rd day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Feed intake

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | -.1667 | .7327 | .822 | -1.663 | 1.330 |
| | HF-HC Diet+1XID Oryzanol | .7000 | .7327 | .347 | -.796 | 2.196 |
| | HF-HC Diet+2XID Oryzanol | 1.2333 | .7327 | .103 | -.263 | 2.730 |
| | HF-HC Diet+1XCO | 1.8000* | .7327 | .020 | .304 | 3.296 |
| | HF-HC Diet+1XOryzanol | -.8000 | .7327 | .284 | -2.296 | .696 |
| HF-HC Diet | CONTROL | .1667 | .7327 | .822 | -1.330 | 1.663 |
| | HF-HC Diet+1XID Oryzanol | .8667 | .7327 | .246 | -.630 | 2.363 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | HF-HC Diet+2XID Oryzanol | 1.4000 | .7327 | .066 | -.096 | 2.896 |
| | HF-HC Diet+1XCO | 1.9667* | .7327 | .012 | .470 | 3.463 |
| | HF-HC Diet+1XOryzanol | -.6333 | .7327 | .394 | -2.130 | .863 |
| HF-HC Diet+1XID Oryzanol | CONTROL | -.7000 | .7327 | .347 | -2.196 | .796 |
| | HF-HC Diet | -.8667 | .7327 | .246 | -2.363 | .630 |
| | HF-HC Diet+2XID Oryzanol | .5333 | .7327 | .472 | -.963 | 2.030 |
| | HF-HC Diet+1XCO | 1.1000 | .7327 | .144 | -.396 | 2.596 |
| | HF-HC Diet+1XOryzanol | -1.5000* | .7327 | .049 | -2.996 | -.004 |
| HF-HC Diet+2XID Oryzanol | CONTROL | -1.2333 | .7327 | .103 | -2.730 | .263 |
| | HF-HC Diet | -1.4000 | .7327 | .066 | -2.896 | .096 |
| | HF-HC Diet+1XID Oryzanol | -.5333 | .7327 | .472 | -2.030 | .963 |
| | HF-HC Diet+1XCO | .5667 | .7327 | .445 | -.930 | 2.063 |
| | HF-HC Diet+1XOryzanol | -2.0333* | .7327 | .009 | -3.530 | -.537 |
| HF-HC Diet+1XCO | CONTROL | -1.8000* | .7327 | .020 | -3.296 | -.304 |
| | HF-HC Diet | -1.9667* | .7327 | .012 | -3.463 | -.470 |
| | HF-HC Diet+1XID Oryzanol | -1.1000 | .7327 | .144 | -2.596 | .396 |
| | HF-HC Diet+2XID Oryzanol | -.5667 | .7327 | .445 | -2.063 | .930 |
| | HF-HC Diet+1XOryzanol | -2.6000* | .7327 | .001 | -4.096 | -1.104 |
| HF-HC Diet+1XOryzanol | CONTROL | .8000 | .7327 | .284 | -.696 | 2.296 |
| | HF-HC Diet | .6333 | .7327 | .394 | -.863 | 2.130 |
| | HF-HC Diet+1XID Oryzanol | 1.5000* | .7327 | .049 | .004 | 2.996 |
| | HF-HC Diet+2XID Oryzanol | 2.0333* | .7327 | .009 | .537 | 3.530 |
| | HF-HC Diet+1XCO | 2.6000* | .7327 | .001 | 1.104 | 4.096 |

*. The mean difference is significant at the 0.05 level.

a. Ob day = 43rd day of Oryzanol exposure

## Body weights: Phase-I

**OB day = 0th day of HF-HC DIET**

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 155.38 | 10.090 | 4.1191 | 144.795 | 165.972 | 141.3 | 169.1 |
| HF-HC Diet | 24 | 153.23 | 9.286 | 1.8955 | 149.304 | 157.146 | 133.9 | 167.3 |
| HF-HC Diet+1XOryzanol | 6 | 154.78 | 9.341 | 3.8133 | 144.981 | 164.586 | 140.6 | 163.5 |
| Total | 36 | 153.84 | 9.192 | 1.5320 | 150.734 | 156.955 | 133.9 | 169.1 |

a. OB day = 0th day of HF-HC

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .010 | 2 | 33 | .991 |

a. OB day = 0th day of HF-HC

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Body weights | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 28.707 | 2 | 14.354 | .162 | .851 |
| Within Groups | 2928.622 | 33 | 88.746 | | |
| Total | 2957.329 | 35 | | | |
| a. OB day = 0th day of HF-HC | | | | | |

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | |
|---|---|---|---|---|---|---|
| Dependent Variable: Body weights<br>LSD | | | | | | |
| | | | | | 95% Confidence Interval | |
| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | 2.1583 | 4.2999 | .619 | -6.590 | 10.906 |
| | HF-HC Diet+1XOryzanol | .6000 | 5.4389 | .913 | -10.466 | 11.666 |
| HF-HC Diet | CONTROL | -2.1583 | 4.2999 | .619 | -10.906 | 6.590 |
| | HF-HC Diet+1XOryzanol | -1.5583 | 4.2999 | .719 | -10.306 | 7.190 |
| HF-HC Diet+1XOryzanol | CONTROL | -.6000 | 5.4389 | .913 | -11.666 | 10.466 |
| | HF-HC Diet | 1.5583 | 4.2999 | .719 | -7.190 | 10.306 |
| a. OB day = 0th day of HF-HC | | | | | | |

## Obs day = 15th day of HF-HC DIET

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Body weights | | | | | | | | |
| | | | | | 95% Confidence Interval for Mean | | | |
| | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |
| CONTROL | 6 | 157.82 | 11.530 | 4.7072 | 145.716 | 169.917 | 141.3 | 172.8 |
| HF-HC Diet | 24 | 154.45 | 10.745 | 2.1933 | 149.909 | 158.983 | 133.4 | 170.2 |
| HF-HC Diet+1XOryzanol | 6 | 156.83 | 10.491 | 4.2831 | 145.823 | 167.843 | 139.4 | 167.4 |
| Total | 36 | 155.41 | 10.610 | 1.7683 | 151.816 | 158.995 | 133.4 | 172.8 |
| a. OB day = 15th day of HF-HC | | | | | | | | |

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Body weights | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .053 | 2 | 33 | .948 |
| a. OB day = 15th day of HF-HC | | | |

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Body weights | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 69.218 | 2 | 34.609 | .295 | .746 |
| Within Groups | 3870.461 | 33 | 117.287 | | |
| Total | 3939.679 | 35 | | | |
| a. OB day = 15th day of HF-HC | | | | | |

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | |
|---|---|---|---|---|---|---|
| Dependent Variable: | Body weights | | | | | |
| LSD | | | | | | |
| | | | | | 95% Confidence Interval | |
| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | 3.3708 | 4.9431 | .500 | -6.686 | 13.428 |
| | HF-HC Diet+1XOryzanol | .9833 | 6.2526 | .876 | -11.738 | 13.704 |
| HF-HC Diet | CONTROL | -3.3708 | 4.9431 | .500 | -13.428 | 6.686 |
| | HF-HC Diet+1XOryzanol | -2.3875 | 4.9431 | .632 | -12.444 | 7.669 |
| HF-HC Diet+1XOryzanol | CONTROL | -.9833 | 6.2526 | .876 | -13.704 | 11.738 |
| | HF-HC Diet | 2.3875 | 4.9431 | .632 | -7.669 | 12.444 |

## Obs day = 30th day of HF-HC DIET

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Body weights | | | | | | | | |
| | | | | | 95% Confidence Interval for Mean | | | |
| | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |
| CONTROL | 6 | 159.20 | 12.112 | 4.9448 | 146.489 | 171.911 | 141.8 | 172.6 |
| HF-HC Diet | 23 | 156.64 | 10.299 | 2.1475 | 152.185 | 161.093 | 135.4 | 172.8 |
| HF-HC Diet+1XOryzanol | 6 | 157.33 | 10.786 | 4.4034 | 146.014 | 168.653 | 139.5 | 168.3 |
| Total | 35 | 157.20 | 10.404 | 1.7586 | 153.623 | 160.771 | 135.4 | 172.8 |
| a. OB day = 30th day of HF-HC | | | | | | | | |

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Body weights | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .277 | 2 | 32 | .760 |
| a. OB day = 30th day of HF-HC | | | |

ANOVA[a]

Body weights

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 31.342 | 2 | 15.671 | .137 | .872 |
| Within Groups | 3648.848 | 32 | 114.027 | | |
| Total | 3680.190 | 34 | | | |

a. OB day = 30th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | 2.5609 | 4.8951 | .604 | -7.410 | 12.532 |
| | HF-HC Diet+1XOryzanol | 1.8667 | 6.1651 | .764 | -10.691 | 14.425 |
| HF-HC Diet | CONTROL | -2.5609 | 4.8951 | .604 | -12.532 | 7.410 |
| | HF-HC Diet+1XOryzanol | -.6942 | 4.8951 | .888 | -10.665 | 9.277 |
| HF-HC Diet+1XOryzanol | CONTROL | -1.8667 | 6.1651 | .764 | -14.425 | 10.691 |
| | HF-HC Diet | .6942 | 4.8951 | .888 | -9.277 | 10.665 |

a. OB day = 30th day of HF-HC

## Obs day = 45th day of HF-HC DIET

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 157.85 | 11.268 | 4.6003 | 146.025 | 169.675 | 142.9 | 171.2 |
| HF-HC Diet | 24 | 158.35 | 11.836 | 2.4159 | 153.352 | 163.348 | 135.5 | 180.8 |
| HF-HC Diet+1XOryzanol | 6 | 159.50 | 12.512 | 5.1078 | 146.370 | 172.630 | 139.2 | 170.1 |
| Total | 36 | 158.46 | 11.524 | 1.9207 | 154.559 | 162.358 | 135.5 | 180.8 |

a. OB day = 45th day of HF-HC

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .039 | 2 | 33 | .962 |

a. OB day = 45th day of HF-HC

ANOVA[a]

Body weights

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 9.013 | 2 | 4.506 | .032 | .968 |
| Within Groups | 4639.435 | 33 | 140.589 | | |
| Total | 4648.448 | 35 | | | |

a. OB day = 45th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | -.5000 | 5.4120 | .927 | -11.511 | 10.511 |
| | HF-HC Diet+1XOryzanol | -1.6500 | 6.8457 | .811 | -15.578 | 12.278 |
| HF-HC Diet | CONTROL | .5000 | 5.4120 | .927 | -10.511 | 11.511 |
| | HF-HC Diet+1XOryzanol | -1.1500 | 5.4120 | .833 | -12.161 | 9.861 |
| HF-HC Diet+1XOryzanol | CONTROL | 1.6500 | 6.8457 | .811 | -12.278 | 15.578 |
| | HF-HC Diet | 1.1500 | 5.4120 | .833 | -9.861 | 12.161 |

a. OB day = 45th day of HF-HC

## Obs day = 60th day of HF-HC DIET

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 154.90 | 11.351 | 4.6342 | 142.987 | 166.813 | 137.6 | 167.3 |
| HF-HC Diet | 24 | 155.91 | 11.359 | 2.3187 | 151.112 | 160.705 | 135.3 | 181.2 |
| HF-HC Diet+1XOryzanol | 6 | 157.02 | 12.936 | 5.2809 | 143.442 | 170.592 | 135.1 | 168.7 |
| Total | 36 | 155.93 | 11.291 | 1.8818 | 152.105 | 159.745 | 135.1 | 181.2 |

a. OB day = 60th day of HF-HC

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .151 | 2 | 33 | .860 |

a. OB day = 60th day of HF-HC

ANOVA[a]

Body weights

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 13.461 | 2 | 6.730 | .050 | .951 |
| Within Groups | 4448.567 | 33 | 134.805 | | |
| Total | 4462.028 | 35 | | | |

a. OB day = 60th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | -1.0083 | 5.2995 | .850 | -11.790 | 9.774 |
| | HF-HC Diet+1XOryzanol | -2.1167 | 6.7034 | .754 | -15.755 | 11.521 |
| HF-HC Diet | CONTROL | 1.0083 | 5.2995 | .850 | -9.774 | 11.790 |
| | HF-HC Diet+1XOryzanol | -1.1083 | 5.2995 | .836 | -11.890 | 9.674 |
| HF-HC Diet+1XOryzanol | CONTROL | 2.1167 | 6.7034 | .754 | -11.521 | 15.755 |
| | HF-HC Diet | 1.1083 | 5.2995 | .836 | -9.674 | 11.890 |

a. OB day = 60th day of HF-HC

## PHASE-II
## OB day = 1st day of Oryzanol exposure

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 154.90 | 11.351 | 4.6342 | 142.987 | 166.813 | 137.6 | 167.3 |
| HF-HC Diet | 6 | 155.67 | 14.304 | 5.8396 | 140.655 | 170.678 | 137.1 | 181.2 |
| HF-HC Diet+1XID Oryzanol | 6 | 162.23 | 9.772 | 3.9895 | 151.978 | 172.489 | 151.2 | 173.2 |
| HF-HC Diet+2XID Oryzanol | 6 | 146.70 | 7.469 | 3.0492 | 138.862 | 154.538 | 135.3 | 156.1 |
| HF-HC Diet+1XCO | 6 | 159.03 | 8.723 | 3.5611 | 149.879 | 168.188 | 150.6 | 169.8 |
| HF-HC Diet+1XOryzanol | 6 | 157.02 | 12.936 | 5.2809 | 143.442 | 170.592 | 135.1 | 168.7 |
| Total | 36 | 155.93 | 11.291 | 1.8818 | 152.105 | 159.745 | 135.1 | 181.2 |

a. OB day = 1st day of Oryzanol exposure

| Test of Homogeneity of Variances[a] | | | |
|---|---|---|---|
| Body weights | | | |
| Levene Statistic | df1 | df2 | Sig. |
| .415 | 5 | 30 | .835 |
| a. OB day = 1st day of Oryzanol exposure | | | |

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Body weights | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 821.199 | 5 | 164.240 | 1.353 | .270 |
| Within Groups | 3640.828 | 30 | 121.361 | | |
| Total | 4462.028 | 35 | | | |
| a. OB day = 1st day of Oryzanol exposure | | | | | |

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | 95% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|
| CONTROL | HF-HC Diet | -.7667 | 6.3603 | .905 | -13.756 | 12.223 |
| | HF-HC Diet+1XID Oryzanol | -7.3333 | 6.3603 | .258 | -20.323 | 5.656 |
| | HF-HC Diet+2XID Oryzanol | 8.2000 | 6.3603 | .207 | -4.790 | 21.190 |
| | HF-HC Diet+1XCO | -4.1333 | 6.3603 | .521 | -17.123 | 8.856 |
| | HF-HC Diet+1XOryzanol | -2.1167 | 6.3603 | .742 | -15.106 | 10.873 |
| HF-HC Diet | CONTROL | .7667 | 6.3603 | .905 | -12.223 | 13.756 |
| | HF-HC Diet+1XID Oryzanol | -6.5667 | 6.3603 | .310 | -19.556 | 6.423 |
| | HF-HC Diet+2XID Oryzanol | 8.9667 | 6.3603 | .169 | -4.023 | 21.956 |
| | HF-HC Diet+1XCO | -3.3667 | 6.3603 | .600 | -16.356 | 9.623 |
| | HF-HC Diet+1XOryzanol | -1.3500 | 6.3603 | .833 | -14.340 | 11.640 |
| HF-HC Diet+1XID Oryzanol | CONTROL | 7.3333 | 6.3603 | .258 | -5.656 | 20.323 |
| | HF-HC Diet | 6.5667 | 6.3603 | .310 | -6.423 | 19.556 |
| | HF-HC Diet+2XID Oryzanol | 15.5333* | 6.3603 | .021 | 2.544 | 28.523 |
| | HF-HC Diet+1XCO | 3.2000 | 6.3603 | .619 | -9.790 | 16.190 |
| | HF-HC Diet+1XOryzanol | 5.2167 | 6.3603 | .419 | -7.773 | 18.206 |
| HF-HC Diet+2XID Oryzanol | CONTROL | -8.2000 | 6.3603 | .207 | -21.190 | 4.790 |
| | HF-HC Diet | -8.9667 | 6.3603 | .169 | -21.956 | 4.023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| HF-HC Diet+1XCO | HF-HC Diet+1XID Oryzanol | -15.5333* | 6.3603 | .021 | -28.523 | -2.544 |
| | HF-HC Diet+1XCO | -12.3333 | 6.3603 | .062 | -25.323 | .656 |
| | HF-HC Diet+1XOryzanol | -10.3167 | 6.3603 | .115 | -23.306 | 2.673 |
| | CONTROL | 4.1333 | 6.3603 | .521 | -8.856 | 17.123 |
| | HF-HC Diet | 3.3667 | 6.3603 | .600 | -9.623 | 16.356 |
| | HF-HC Diet+1XID Oryzanol | -3.2000 | 6.3603 | .619 | -16.190 | 9.790 |
| | HF-HC Diet+2XID Oryzanol | 12.3333 | 6.3603 | .062 | -.656 | 25.323 |
| | HF-HC Diet+1XOryzanol | 2.0167 | 6.3603 | .753 | -10.973 | 15.006 |
| HF-HC Diet+1XOryzanol | CONTROL | 2.1167 | 6.3603 | .742 | -10.873 | 15.106 |
| | HF-HC Diet | 1.3500 | 6.3603 | .833 | -11.640 | 14.340 |
| | HF-HC Diet+1XID Oryzanol | -5.2167 | 6.3603 | .419 | -18.206 | 7.773 |
| | HF-HC Diet+2XID Oryzanol | 10.3167 | 6.3603 | .115 | -2.673 | 23.306 |
| | HF-HC Diet+1XCO | -2.0167 | 6.3603 | .753 | -15.006 | 10.973 |

*. The mean difference is significant at the 0.05 level.

a. OB day = 1st day of Oryzanol exposure

## OB day = 15th day of Oryzanol exposure

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 156.67 | 10.687 | 4.3628 | 145.452 | 167.882 | 141.1 | 169.1 |
| HF-HC Diet | 6 | 156.50 | 16.874 | 6.8890 | 138.791 | 174.209 | 133.6 | 182.8 |
| HF-HC Diet+1XID Oryzanol | 6 | 157.70 | 11.125 | 4.5417 | 146.025 | 169.375 | 141.6 | 175.7 |
| HF-HC Diet+2XID Oryzanol | 6 | 157.47 | 11.249 | 4.5923 | 145.662 | 169.272 | 144.2 | 173.0 |
| HF-HC Diet+1XCO | 6 | 157.87 | 9.785 | 3.9946 | 147.598 | 168.135 | 146.4 | 170.3 |
| HF-HC Diet+1XOryzanol | 6 | 158.65 | 13.570 | 5.5401 | 144.409 | 172.891 | 136.5 | 171.6 |
| Total | 36 | 157.48 | 11.545 | 1.9241 | 153.569 | 161.381 | 133.6 | 182.8 |

a. OB day = 15th day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .513 | 5 | 30 | .764 |

a. OB day = 15th day of Oryzanol exposure

| ANOVA[a] | | | | | |
|---|---|---|---|---|---|
| Body weights | | | | | |
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 19.133 | 5 | 3.827 | .025 | 1.000 |
| Within Groups | 4645.735 | 30 | 154.858 | | |
| Total | 4664.868 | 35 | | | |

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | .1667 | 7.1847 | .982 | -14.506 | 14.840 |
| | HF-HC Diet+1XID Oryzanol | -1.0333 | 7.1847 | .887 | -15.706 | 13.640 |
| | HF-HC Diet+2XID Oryzanol | -.8000 | 7.1847 | .912 | -15.473 | 13.873 |
| | HF-HC Diet+1XCO | -1.2000 | 7.1847 | .868 | -15.873 | 13.473 |
| | HF-HC Diet+1XOryzanol | -1.9833 | 7.1847 | .784 | -16.656 | 12.690 |
| HF-HC Diet | CONTROL | -.1667 | 7.1847 | .982 | -14.840 | 14.506 |
| | HF-HC Diet+1XID Oryzanol | -1.2000 | 7.1847 | .868 | -15.873 | 13.473 |
| | HF-HC Diet+2XID Oryzanol | -.9667 | 7.1847 | .894 | -15.640 | 13.706 |
| | HF-HC Diet+1XCO | -1.3667 | 7.1847 | .850 | -16.040 | 13.306 |
| | HF-HC Diet+1XOryzanol | -2.1500 | 7.1847 | .767 | -16.823 | 12.523 |
| HF-HC Diet+1XID Oryzanol | CONTROL | 1.0333 | 7.1847 | .887 | -13.640 | 15.706 |
| | HF-HC Diet | 1.2000 | 7.1847 | .868 | -13.473 | 15.873 |
| | HF-HC Diet+2XID Oryzanol | .2333 | 7.1847 | .974 | -14.440 | 14.906 |
| | HF-HC Diet+1XCO | -.1667 | 7.1847 | .982 | -14.840 | 14.506 |
| | HF-HC Diet+1XOryzanol | -.9500 | 7.1847 | .896 | -15.623 | 13.723 |
| HF-HC Diet+2XID Oryzanol | CONTROL | .8000 | 7.1847 | .912 | -13.873 | 15.473 |
| | HF-HC Diet | .9667 | 7.1847 | .894 | -13.706 | 15.640 |
| | HF-HC Diet+1XID Oryzanol | -.2333 | 7.1847 | .974 | -14.906 | 14.440 |
| | HF-HC Diet+1XCO | -.4000 | 7.1847 | .956 | -15.073 | 14.273 |
| | HF-HC Diet+1XOryzanol | -1.1833 | 7.1847 | .870 | -15.856 | 13.490 |
| HF-HC Diet+1XCO | CONTROL | 1.2000 | 7.1847 | .868 | -13.473 | 15.873 |
| | HF-HC Diet | 1.3667 | 7.1847 | .850 | -13.306 | 16.040 |
| | HF-HC Diet+1XID Oryzanol | .1667 | 7.1847 | .982 | -14.506 | 14.840 |

| | | | | | | |
|---|---|---|---|---|---|---|
| HF-HC Diet+1XOryzanol | HF-HC Diet+2XID Oryzanol | .4000 | 7.1847 | .956 | -14.273 | 15.073 |
| | HF-HC Diet+1XOryzanol | -.7833 | 7.1847 | .914 | -15.456 | 13.890 |
| | CONTROL | 1.9833 | 7.1847 | .784 | -12.690 | 16.656 |
| | HF-HC Diet | 2.1500 | 7.1847 | .767 | -12.523 | 16.823 |
| | HF-HC Diet+1XID Oryzanol | .9500 | 7.1847 | .896 | -13.723 | 15.623 |
| | HF-HC Diet+2XID Oryzanol | 1.1833 | 7.1847 | .870 | -13.490 | 15.856 |
| | HF-HC Diet+1XCO | .7833 | 7.1847 | .914 | -13.890 | 15.456 |

a. OB day = 15th day of Oryzanol exposure

## OB day = 30TH day of Oryzanol exposure

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 156.73 | 8.609 | 3.5145 | 147.699 | 165.768 | 145.6 | 164.3 |
| HF-HC Diet | 6 | 157.60 | 17.087 | 6.9758 | 139.668 | 175.532 | 133.2 | 183.4 |
| HF-HC Diet+1XID Oryzanol | 6 | 158.83 | 11.167 | 4.5591 | 147.114 | 170.553 | 144.1 | 178.0 |
| HF-HC Diet+2XID Oryzanol | 6 | 159.15 | 9.757 | 3.9831 | 148.911 | 169.389 | 149.2 | 171.9 |
| HF-HC Diet+1XCO | 6 | 161.35 | 11.288 | 4.6083 | 149.504 | 173.196 | 150.2 | 175.5 |
| HF-HC Diet+1XOryzanol | 6 | 158.82 | 14.329 | 5.8500 | 143.779 | 173.855 | 135.0 | 171.4 |
| Total | 36 | 158.75 | 11.548 | 1.9247 | 154.840 | 162.655 | 133.2 | 183.4 |

a. OB day = 30TH day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .674 | 5 | 30 | .646 |

a. OB day = 30TH day of Oryzanol exposure

ANOVA[a]

Body weights

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 73.925 | 5 | 14.785 | .097 | .992 |
| Within Groups | 4593.685 | 30 | 153.123 | | |
| Total | 4667.610 | 35 | | | |

a. OB day = 30TH day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | -.8667 | 7.1443 | .904 | -15.457 | 13.724 |
| | HF-HC Diet+1XID Oryzanol | -2.1000 | 7.1443 | .771 | -16.691 | 12.491 |
| | HF-HC Diet+2XID Oryzanol | -2.4167 | 7.1443 | .738 | -17.007 | 12.174 |
| | HF-HC Diet+1XCO | -4.6167 | 7.1443 | .523 | -19.207 | 9.974 |
| | HF-HC Diet+1XOryzanol | -2.0833 | 7.1443 | .773 | -16.674 | 12.507 |
| HF-HC Diet | CONTROL | .8667 | 7.1443 | .904 | -13.724 | 15.457 |
| | HF-HC Diet+1XID Oryzanol | -1.2333 | 7.1443 | .864 | -15.824 | 13.357 |
| | HF-HC Diet+2XID Oryzanol | -1.5500 | 7.1443 | .830 | -16.141 | 13.041 |
| | HF-HC Diet+1XCO | -3.7500 | 7.1443 | .604 | -18.341 | 10.841 |
| | HF-HC Diet+1XOryzanol | -1.2167 | 7.1443 | .866 | -15.807 | 13.374 |
| HF-HC Diet+1XID Oryzanol | CONTROL | 2.1000 | 7.1443 | .771 | -12.491 | 16.691 |
| | HF-HC Diet | 1.2333 | 7.1443 | .864 | -13.357 | 15.824 |
| | HF-HC Diet+2XID Oryzanol | -.3167 | 7.1443 | .965 | -14.907 | 14.274 |
| | HF-HC Diet+1XCO | -2.5167 | 7.1443 | .727 | -17.107 | 12.074 |
| | HF-HC Diet+1XOryzanol | .0167 | 7.1443 | .998 | -14.574 | 14.607 |
| HF-HC Diet+2XID Oryzanol | CONTROL | 2.4167 | 7.1443 | .738 | -12.174 | 17.007 |
| | HF-HC Diet | 1.5500 | 7.1443 | .830 | -13.041 | 16.141 |
| | HF-HC Diet+1XID Oryzanol | .3167 | 7.1443 | .965 | -14.274 | 14.907 |
| | HF-HC Diet+1XCO | -2.2000 | 7.1443 | .760 | -16.791 | 12.391 |
| | HF-HC Diet+1XOryzanol | .3333 | 7.1443 | .963 | -14.257 | 14.924 |
| HF-HC Diet+1XCO | CONTROL | 4.6167 | 7.1443 | .523 | -9.974 | 19.207 |
| | HF-HC Diet | 3.7500 | 7.1443 | .604 | -10.841 | 18.341 |
| | HF-HC Diet+1XID Oryzanol | 2.5167 | 7.1443 | .727 | -12.074 | 17.107 |
| | HF-HC Diet+2XID Oryzanol | 2.2000 | 7.1443 | .760 | -12.391 | 16.791 |
| | HF-HC Diet+1XOryzanol | 2.5333 | 7.1443 | .725 | -12.057 | 17.124 |
| HF-HC Diet+1XOryzanol | CONTROL | 2.0833 | 7.1443 | .773 | -12.507 | 16.674 |
| | HF-HC Diet | 1.2167 | 7.1443 | .866 | -13.374 | 15.807 |
| | HF-HC Diet+1XID Oryzanol | -.0167 | 7.1443 | .998 | -14.607 | 14.574 |
| | HF-HC Diet+2XID Oryzanol | -.3333 | 7.1443 | .963 | -14.924 | 14.257 |
| | HF-HC Diet+1XCO | -2.5333 | 7.1443 | .725 | -17.124 | 12.057 |

a. OB day = 30TH day of Oryzanol exposure

## OB day = 43rd day of Oryzanol exposure

Descriptives[a]

Body weights

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| CONTROL | 6 | 153.20 | 8.296 | 3.3869 | 144.494 | 161.906 | 142.0 | 163.4 |
| HF-HC Diet | 6 | 154.20 | 15.561 | 6.3526 | 137.870 | 170.530 | 132.7 | 178.9 |
| HF-HC Diet+1XID Oryzanol | 6 | 154.47 | 9.793 | 3.9981 | 144.189 | 164.744 | 143.3 | 172.2 |
| HF-HC Diet+2XID Oryzanol | 6 | 154.72 | 9.278 | 3.7876 | 144.980 | 164.453 | 143.1 | 166.0 |
| HF-HC Diet+1XCO | 6 | 155.55 | 11.521 | 4.7032 | 143.460 | 167.640 | 142.4 | 169.3 |
| HF-HC Diet+1XOryzanol | 6 | 156.08 | 15.204 | 6.2072 | 140.127 | 172.039 | 131.3 | 172.0 |
| Total | 36 | 154.70 | 11.104 | 1.8506 | 150.946 | 158.460 | 131.3 | 178.9 |

a. OB day = 43rd day of Oryzanol exposure

Test of Homogeneity of Variances[a]

Body weights

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .812 | 5 | 30 | .550 |

a. OB day = 43rd day of Oryzanol exposure

ANOVA[a]

Body weights

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 31.145 | 5 | 6.229 | .044 | .999 |
| Within Groups | 4284.225 | 30 | 142.808 | | |
| Total | 4315.370 | 35 | | | |

a. OB day = 43rd day of Oryzanol exposure

## Post Hoc Tests

Multiple Comparisons[a]

Dependent Variable: Body weights

LSD

| (I) Test group | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| CONTROL | HF-HC Diet | -1.0000 | 6.8995 | .886 | -15.091 | 13.091 |
| | HF-HC Diet+1XID Oryzanol | -1.2667 | 6.8995 | .856 | -15.357 | 12.824 |
| | HF-HC Diet+2XID Oryzanol | -1.5167 | 6.8995 | .827 | -15.607 | 12.574 |
| | HF-HC Diet+1XCO | -2.3500 | 6.8995 | .736 | -16.441 | 11.741 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | HF-HC Diet+1XOryzanol | -2.8833 | 6.8995 | .679 | -16.974 | 11.207 |
| HF-HC Diet | CONTROL | 1.0000 | 6.8995 | .886 | -13.091 | 15.091 |
| | HF-HC Diet+1XID Oryzanol | -.2667 | 6.8995 | .969 | -14.357 | 13.824 |
| | HF-HC Diet+2XID Oryzanol | -.5167 | 6.8995 | .941 | -14.607 | 13.574 |
| | HF-HC Diet+1XCO | -1.3500 | 6.8995 | .846 | -15.441 | 12.741 |
| | HF-HC Diet+1XOryzanol | -1.8833 | 6.8995 | .787 | -15.974 | 12.207 |
| HF-HC Diet+1XID Oryzanol | CONTROL | 1.2667 | 6.8995 | .856 | -12.824 | 15.357 |
| | HF-HC Diet | .2667 | 6.8995 | .969 | -13.824 | 14.357 |
| | HF-HC Diet+2XID Oryzanol | -.2500 | 6.8995 | .971 | -14.341 | 13.841 |
| | HF-HC Diet+1XCO | -1.0833 | 6.8995 | .876 | -15.174 | 13.007 |
| | HF-HC Diet+1XOryzanol | -1.6167 | 6.8995 | .816 | -15.707 | 12.474 |
| HF-HC Diet+2XID Oryzanol | CONTROL | 1.5167 | 6.8995 | .827 | -12.574 | 15.607 |
| | HF-HC Diet | .5167 | 6.8995 | .941 | -13.574 | 14.607 |
| | HF-HC Diet+1XID Oryzanol | .2500 | 6.8995 | .971 | -13.841 | 14.341 |
| | HF-HC Diet+1XCO | -.8333 | 6.8995 | .905 | -14.924 | 13.257 |
| | HF-HC Diet+1XOryzanol | -1.3667 | 6.8995 | .844 | -15.457 | 12.724 |
| HF-HC Diet+1XCO | CONTROL | 2.3500 | 6.8995 | .736 | -11.741 | 16.441 |
| | HF-HC Diet | 1.3500 | 6.8995 | .846 | -12.741 | 15.441 |
| | HF-HC Diet+1XID Oryzanol | 1.0833 | 6.8995 | .876 | -13.007 | 15.174 |
| | HF-HC Diet+2XID Oryzanol | .8333 | 6.8995 | .905 | -13.257 | 14.924 |
| | HF-HC Diet+1XOryzanol | -.5333 | 6.8995 | .939 | -14.624 | 13.557 |
| HF-HC Diet+1XOryzanol | CONTROL | 2.8833 | 6.8995 | .679 | -11.207 | 16.974 |
| | HF-HC Diet | 1.8833 | 6.8995 | .787 | -12.207 | 15.974 |
| | HF-HC Diet+1XID Oryzanol | 1.6167 | 6.8995 | .816 | -12.474 | 15.707 |
| | HF-HC Diet+2XID Oryzanol | 1.3667 | 6.8995 | .844 | -12.724 | 15.457 |
| | HF-HC Diet+1XCO | .5333 | 6.8995 | .939 | -13.557 | 14.624 |

a. OB day = 43rd day of Oryzanol exposure

## Cage side

**Home Cage Activity**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Home cage activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Home cage activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30th day of HF-HC Diet | Home cage activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | Home cage activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | Home cage activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |

**Home Cage Activity**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obs day | 1st day of oryzanol exposure | Home cage activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Home cage activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Home cage activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Home cage activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Feaces Excretion**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Feaces Excretion | Present | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Feaces Excretion | Present | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Feaces Excretion | Present | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Feaces Excretion | Present | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Feaces Excretion | Present | 6 | 100 | 24 | 100 | 6 | 100 |

**Feaces Excretion**

| | Test group | | | | | |
|---|---|---|---|---|---|---|
| | CONT | HF-HC | HF-HC | HF-HC | HF-HC | HF-HC |

| | | | | ROL | | Diet | | Diet+1XID ORYZANOL | | Diet+2XID ORYZANOL | | Diet+1XCO | | Diet+1XORYZANOL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obseday | 1st day of oryzanol exposure | Feaces Excretion | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Feaces Excretion | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Feaces Excretion | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Feaces Excretion | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**FEACES COLOUR**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Feaces colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Feaces colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Feaces colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Feaces colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Feaces colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**FEACES COLOUR**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Feaces colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Feaces colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol | Feaces colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | exposure | | | | | | | | | | | | | | |
| | 43rd day of oryzanol exposure | Feaces colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**FEACES CONSISITENCY**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Feaces consistency | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Feaces consistency | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Feaces consistency | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Feaces consistency | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Feaces consistency | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**FEACES CONSISITENCY**

| | | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obs day | 1st day of oryzanol exposure | Feaces consistency | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Feaces consistency | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Feaces consistency | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Feaces consistency | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**URINE OUTPUT**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Urine output | Present | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15th day of HF-HC Diet | Urine output | Present | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 30th day of HF-HC Diet | Urine output | Present | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | Urine output | Present | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | Urine output | Present | 6 | 100 | 24 | 100 | 6 | 100 | | |

**URINE OUTPUT**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Urine output | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Urine output | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Urine output | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Urine output | Present | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**URINE COLOUR**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Urine colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Urine colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Urine colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Urine colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Urine colour | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**URINE COLOUR**

| | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | N | % | N | % | N | % | N | % | N | % | N | % |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Observation day | 1st day of oryzanol exposure | Urine colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Urine colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Urine colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Urine colour | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**BEHAVIOUR WHILE REMOVING FROM THE CAGE**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 24 | 100 | 6 | 100 |

**BEHAVIOUR WHILE REMOVING FROM THE CAGE**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Behaviour while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol | Behaviour while | Animal is quiet & is | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | exposure | removing from the cage | easily removed | | | | | | | | | | | |
| | 43rd day of oryzanol exposure | Behavior while removing from the cage | Animal is quiet & is easily removed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

## Physical examination

| Hair coat | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | |
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | | | |
| | | | | N | % | N | % | N | % | | |
| Observation day | 0th day of HF-HC Diet | Hair coat | Cleanly groomed | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 15th day of HF-HC Diet | Hair coat | Cleanly groomed | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 30th day of HF-HC Diet | Hair coat | Cleanly groomed | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | Hair coat | Cleanly groomed | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | Hair coat | Cleanly groomed | 6 | 100 | 24 | 100 | 6 | 100 | | |

| Hair coat | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | | | | | |
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1X CO | | HF-HC Diet+1X ORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obsday | 1st day of oryzanol exposure | Hair coat | Cleanly groomed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Hair coat | Cleanly groomed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Hair coat | Cleanly groomed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Hair coat | Cleanly groomed | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| Piloerection | | | |
|---|---|---|---|
| | Test group | | |
| | CONTROL | HF-HC Diet | HF-HC Diet+1XORYZANOL |

| | | | N | % | N | % | N | % |
|---|---|---|---|---|---|---|---|---|
| Observation day | 0th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

**Piloerection**

| | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Respiration Rate**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Respiration Rate | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Respiration Rate | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Respiration Rate | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Respiration Rate | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Respiration Rate | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Respiration Rate**

| | Test group | | | | | |
|---|---|---|---|---|---|---|
| | CONTROL | HF-HC Diet | HF-HC Diet+1XID ORYZANOL | HF-HC Diet+2XID ORYZANOL | HF-HC Diet+1XCO | HF-HC Diet+1X ORYZANOL |

| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Obs day | 1st day of oryzanol exposure | Respiration Rate | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Respiration Rate | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Respiration Rate | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Respiration Rate | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Respiration Character**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Respiration Character | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Respiration Character | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Respiration Character | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Respiration Character | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Respiration Character | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Respiration Character**

| | | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obsday | 1st day of oryzanol exposure | Respiration Character | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Respiration Character | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Respiration Charact | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | er | | | | | | | | | | | | |
| | 43rd day of oryzanol exposure | Respiration Character | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Lacrimation**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Lacrimation**

| | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Salivation**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 45th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| 60th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Salivation**

| | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1 XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1 XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Eye Lid(s)/Closure**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Eye lid (s)closure | Eye lids open | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Eye lid (s)closure | Eye lids open | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Eye lid (s)closure | Eye lids open | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Eye lid (s)closure | Eye lids open | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Eye lid (s)closure | Eye lids open | 6 | 100 | 24 | 100 | 6 | 100 |

**Eye Lid(s)/Closure**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1X CO | | HF-HC Diet+1X ORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Eye lid (s)closure | Eye lids open | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Eye lid (s)closure | Eye lids open | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day | Eye lid | Eye lids | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | of oryzanol exposure | (s)closure | open | | | | | | | | | | | |
| | 43rd day of oryzanol exposure | Eye lid (s)closure | Eye lids open | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Eye Prominance**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Eye Prominance | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Eye Prominance | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Eye Prominance | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Eye Prominance | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Eye Prominance | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Eye Prominance**

| | | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Eye Prominance | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Eye Prominance | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Eye Prominance | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Eye Prominance | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Convulsions**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 30th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| 45th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| 60th day of HF-HC Diet | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Convulsions**

| | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Biting habit**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Biting habit | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Biting habit | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Biting habit | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Biting habit | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Biting habit | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

**Biting habit**

| | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | N | % | N | % | N | % | N | % | N | % | N | % |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Observation day | 1st day of oryzanol exposure | Biting habit | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Biting habit | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Biting habit | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Biting habit | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Tremors**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XORYZANOL | |
| | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

**Tremors**

| | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CONTROL | | HF-HC Diet | | HF-HC Diet+1XID ORYZANOL | | HF-HC Diet+2XID ORYZANOL | | HF-HC Diet+1XCO | | HF-HC Diet+1X ORYZANOL | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

## Neurological

| Locomotor Activity | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | | | |
| | | | | N | % | N | % | N | % | | |
| Observation day | 0th day of HF-HC Diet | Locomotor activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 15th day of HF-HC Diet | Locomotor activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 30th day of HF-HC Diet | Locomotor activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 45th day of HF-HC Diet | Locomotor activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |
| | 60th day of HF-HC Diet | Locomotor activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 | | |

| Locomotor Activity | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Locomotor activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Locomotor activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Locomotor activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Locomotor activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| Rearingactivity | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Rearing activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Rearing activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Rearing activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 45th day of HF-HC Diet | Rearing activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Rearing activity | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Rearingactivity**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1X Oryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Rearing activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Rearing activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Rearing activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Rearing activity | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Static limb position**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Static limb postion | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Static limb postion | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Static limb postion | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Static limb postion | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Static limb postion | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Static limb position**

| | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1X Oryzanol | |
| | N | % | N | % | N | % | N | % | N | % | N | % |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Observation day | 1st day of Oryzanol exposure | Static limb postion | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Static limb postion | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Static limb postion | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Static limb postion | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Abnormal gait**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Abnormal gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Abnormal gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Abnormal gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Abnormal gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Abnormal gait | None | 6 | 100 | 24 | 100 | 6 | 100 |

**Abnormal gait**

| | | | | Test group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2 XID Oryzanol | | HF-HC Diet+1 XCO | | HF-HC Diet+1X Oryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Abnormal gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Abnormal gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Abnormal gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Abnormal gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Ataxic gait**

| | Test group |
|---|---|

| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Ataxic gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Ataxic gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Ataxic gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Ataxic gait | None | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Ataxic gait | None | 6 | 100 | 24 | 100 | 6 | 100 |

**Ataxic gait**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2 XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1X Oryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Ataxic gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Ataxic gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Ataxic gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Ataxic gait | None | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Head position**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Head position | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Head position | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Head position | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Head position | Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Head position | Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Head position**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1 XID Oryzanol | | HF-HC Diet+2 XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1 XOryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Head position | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Head position | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Head position | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Head position | Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Pinna touch response**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 24 | 100 | 6 | 100 |

**Pinna touch response**

| | | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1 XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1 XOryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30TH day of Oryzanol exposure | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Pinna touch response | Auricle twitches or Normal | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

## Alergenicity

**Erythema**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

**Erythema**

| | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1XOryzanol | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obsday | 1st day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Alopecia**

| | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | N | % | N | % | N | % |
| Observation | 0th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| day | 15th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 | | | |
| | 30th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 | | | |
| | 45th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 | | | |
| | 60th day of HF-HC Diet | Absent | 6 | 100 | 24 | 100 | 6 | 100 | | | |

**Alopecia**

| | | | Test group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1XOryzanol | |
| | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Observation day | 1st day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

**Eye appearance**

| | | | | Test group | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XOryzanol | |
| | | | | N | % | N | % | N | % |
| Observation day | 0th day of HF-HC Diet | Eye appearance | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 15th day of HF-HC Diet | Eye appearance | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 30th day of HF-HC Diet | Eye appearance | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 45th day of HF-HC Diet | Eye appearance | Absent | 6 | 100 | 24 | 100 | 6 | 100 |
| | 60th day of HF-HC Diet | Eye appearance | Absent | 6 | 100 | 24 | 100 | 6 | 100 |

| Eye appearance | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Test group | | | | | | | | | | |
| | | | | Control | | HF-HC Diet | | HF-HC Diet+1XID Oryzanol | | HF-HC Diet+2XID Oryzanol | | HF-HC Diet+1XCO | | HF-HC Diet+1X Oryzanol | |
| | | | | N | % | N | % | N | % | N | % | N | % | N | % |
| Obsday | 1st day of Oryzanol exposure | Eye appearance | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 15th day of Oryzanol exposure | Eye appearance | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 30TH day of Oryzanol exposure | Eye appearance | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |
| | 43rd day of Oryzanol exposure | Eye appearance | Absent | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 | 6 | 100 |

## Phase I - Bio Chemistry
## Day of Exposure = 0th day of HF-HC DIET

| Descriptives[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 95% Confidence Interval for Mean | | |
| | | N | Mean | Std. Deviation | Std. Error | Lower Bound | Upper Bound | Minimum | Maximum |
| Glucose | CONTROL | 6 | 85.50 | 6.348 | 2.592 | 78.84 | 92.16 | 74 | 92 |
| | HF-HC Diet | 24 | 80.46 | 10.879 | 2.221 | 75.86 | 85.05 | 62 | 106 |
| | HF-HC Diet+1XOryzanol | 6 | 73.17 | 9.475 | 3.868 | 63.22 | 83.11 | 64 | 90 |
| | Total | 36 | 80.08 | 10.473 | 1.745 | 76.54 | 83.63 | 62 | 106 |
| CHOL | CONTROL | 6 | 96.05 | 12.073 | 4.9289 | 83.380 | 108.720 | 87.4 | 119.9 |
| | HF-HC Diet | 24 | 82.60 | 12.575 | 2.5668 | 77.294 | 87.914 | 54.2 | 110.7 |
| | HF-HC Diet+1XOryzanol | 6 | 71.10 | 7.834 | 3.1980 | 62.879 | 79.321 | 57.0 | 79.1 |
| | Total | 36 | 82.93 | 13.677 | 2.2796 | 78.300 | 87.556 | 54.2 | 119.9 |
| TRI | CONTROL | 6 | 196.70 | 40.768 | 16.6435 | 153.916 | 239.484 | 139.1 | 248.4 |
| | HF-HC Diet | 24 | 175.65 | 30.600 | 6.2461 | 162.729 | 188.571 | 115.3 | 281.9 |
| | HF-HC Diet+1XOryzanol | 6 | 171.40 | 22.039 | 8.9973 | 148.272 | 194.528 | 144.4 | 207.5 |
| | Total | 36 | 178.45 | 31.514 | 5.2523 | 167.787 | 189.113 | 115.3 | 281.9 |
| HDL | CONTROL | 6 | 82.13 | 9.947 | 4.0607 | 71.695 | 92.572 | 68.4 | 93.6 |
| | HF-HC Diet | 24 | 69.60 | 6.338 | 1.2937 | 66.920 | 72.272 | 59.0 | 83.0 |
| | HF-HC Diet+1XOryzanol | 6 | 57.53 | 9.991 | 4.0788 | 47.048 | 68.018 | 45.9 | 69.0 |
| | Total | 36 | 69.68 | 10.328 | 1.7214 | 66.180 | 73.170 | 45.9 | 93.6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LDL | CONTROL | 6 | 18.67 | 3.481 | 1.4212 | 15.013 | 22.320 | 15.8 | 24.6 |
| | HF-HC Diet | 24 | 16.54 | 4.036 | .8238 | 14.837 | 18.246 | 11.4 | 26.7 |
| | HF-HC Diet+1XOryzanol | 6 | 15.35 | 6.846 | 2.7948 | 8.166 | 22.534 | 9.0 | 28.7 |
| | Total | 36 | 16.70 | 4.486 | .7476 | 15.179 | 18.215 | 9.0 | 28.7 |
| AST | CONTROL | 6 | 53.08 | 27.394 | 11.1836 | 24.335 | 81.832 | 26.8 | 106.3 |
| | HF-HC Diet | 24 | 63.43 | 19.522 | 3.9848 | 55.190 | 71.677 | 38.2 | 108.5 |
| | HF-HC Diet+1XOryzanol | 6 | 53.67 | 13.579 | 5.5437 | 39.416 | 67.917 | 31.7 | 71.9 |
| | Total | 36 | 60.08 | 20.178 | 3.3629 | 53.253 | 66.908 | 26.8 | 108.5 |
| ALT | CONTROL | 6 | 57.45 | 10.189 | 4.1595 | 46.758 | 68.142 | 44.8 | 75.7 |
| | HF-HC Diet | 24 | 57.75 | 11.111 | 2.2680 | 53.054 | 62.438 | 37.7 | 84.8 |
| | HF-HC Diet+1XOryzanol | 6 | 56.08 | 9.940 | 4.0580 | 45.652 | 66.515 | 40.7 | 64.7 |
| | Total | 36 | 57.42 | 10.510 | 1.7516 | 53.864 | 60.975 | 37.7 | 84.8 |

a. Day of Exposure = 0th day of HF-HC

Test of Homogeneity of Variances[a]

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | .885 | 2 | 33 | .422 |
| CHOL | .537 | 2 | 33 | .590 |
| TRI | .899 | 2 | 33 | .417 |
| HDL | 2.153 | 2 | 33 | .132 |
| LDL | .630 | 2 | 33 | .539 |
| AST | .682 | 2 | 33 | .513 |
| ALT | .147 | 2 | 33 | .864 |

a. Day of Exposure = 0th day of HF-HC

ANOVA[a]

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Glucose | Between Groups | 466.458 | 2 | 233.229 | 2.282 | .118 |
| | Within Groups | 3372.292 | 33 | 102.191 | | |
| | Total | 3838.750 | 35 | | | |
| CHOL | Between Groups | 1875.048 | 2 | 937.524 | 6.621 | .004 |
| | Within Groups | 4672.425 | 33 | 141.589 | | |
| | Total | 6547.472 | 35 | | | |
| TRI | Between Groups | 2484.750 | 2 | 1242.375 | 1.270 | .294 |
| | Within Groups | 32274.640 | 33 | 978.019 | | |
| | Total | 34759.390 | 35 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| HDL | Between Groups | 1815.931 | 2 | 907.966 | 15.626 | .000 |
| | Within Groups | 1917.556 | 33 | 58.108 | | |
| | Total | 3733.488 | 35 | | | |
| LDL | Between Groups | 34.743 | 2 | 17.372 | .856 | .434 |
| | Within Groups | 669.567 | 33 | 20.290 | | |
| | Total | 704.310 | 35 | | | |
| AST | Between Groups | 810.381 | 2 | 405.191 | .995 | .381 |
| | Within Groups | 13439.235 | 33 | 407.250 | | |
| | Total | 14249.616 | 35 | | | |
| ALT | Between Groups | 13.273 | 2 | 6.637 | .057 | .945 |
| | Within Groups | 3852.483 | 33 | 116.742 | | |
| | Total | 3865.756 | 35 | | | |

a. Day of Exposure = 0th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 5.042 | 4.614 | .282 | -4.35 | 14.43 |
| | | HF-HC Diet+1XOryzanol | 12.333* | 5.836 | .042 | .46 | 24.21 |
| | HF-HC Diet | CONTROL | -5.042 | 4.614 | .282 | -14.43 | 4.35 |
| | | HF-HC Diet+1XOryzanol | 7.292 | 4.614 | .124 | -2.10 | 16.68 |
| | HF-HC Diet+1XOryzanol | CONTROL | -12.333* | 5.836 | .042 | -24.21 | -.46 |
| | | HF-HC Diet | -7.292 | 4.614 | .124 | -16.68 | 2.10 |
| CHOL | CONTROL | HF-HC Diet | 13.4458* | 5.4312 | .019 | 2.396 | 24.496 |
| | | HF-HC Diet+1XOryzanol | 24.9500* | 6.8699 | .001 | 10.973 | 38.927 |
| | HF-HC Diet | CONTROL | -13.4458* | 5.4312 | .019 | -24.496 | -2.396 |
| | | HF-HC Diet+1XOryzanol | 11.5042* | 5.4312 | .042 | .454 | 22.554 |
| | HF-HC Diet+1XOryzanol | CONTROL | -24.9500* | 6.8699 | .001 | -38.927 | -10.973 |
| | | HF-HC Diet | -11.5042* | 5.4312 | .042 | -22.554 | -.454 |
| TRI | CONTROL | HF-HC Diet | 21.0500 | 14.2742 | .150 | -7.991 | 50.091 |
| | | HF-HC Diet+1XOryzanol | 25.3000 | 18.0556 | .170 | -11.434 | 62.034 |
| | HF-HC Diet | CONTROL | -21.0500 | 14.2742 | .150 | -50.091 | 7.991 |
| | | HF-HC Diet+1XOryzanol | 4.2500 | 14.2742 | .768 | -24.791 | 33.291 |
| | HF-HC | CONTROL | -25.3000 | 18.0556 | .170 | -62.034 | 11.434 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Diet+1XOryzanol | HF-HC Diet | -4.2500 | 14.2742 | .768 | -33.291 | 24.791 |
| HDL | CONTROL | HF-HC Diet | 12.5375* | 3.4793 | .001 | 5.459 | 19.616 |
| | | HF-HC Diet+1XOryzanol | 24.6000* | 4.4011 | .000 | 15.646 | 33.554 |
| | HF-HC Diet | CONTROL | -12.5375* | 3.4793 | .001 | -19.616 | -5.459 |
| | | HF-HC Diet+1XOryzanol | 12.0625* | 3.4793 | .001 | 4.984 | 19.141 |
| | HF-HC Diet+1XOryzanol | CONTROL | -24.6000* | 4.4011 | .000 | -33.554 | -15.646 |
| | | HF-HC Diet | -12.0625* | 3.4793 | .001 | -19.141 | -4.984 |
| LDL | CONTROL | HF-HC Diet | 2.1250 | 2.0560 | .309 | -2.058 | 6.308 |
| | | HF-HC Diet+1XOryzanol | 3.3167 | 2.6006 | .211 | -1.974 | 8.608 |
| | HF-HC Diet | CONTROL | -2.1250 | 2.0560 | .309 | -6.308 | 2.058 |
| | | HF-HC Diet+1XOryzanol | 1.1917 | 2.0560 | .566 | -2.991 | 5.375 |
| | HF-HC Diet+1XOryzanol | CONTROL | -3.3167 | 2.6006 | .211 | -8.608 | 1.974 |
| | | HF-HC Diet | -1.1917 | 2.0560 | .566 | -5.375 | 2.991 |
| AST | CONTROL | HF-HC Diet | -10.3500 | 9.2111 | .269 | -29.090 | 8.390 |
| | | HF-HC Diet+1XOryzanol | -.5833 | 11.6512 | .960 | -24.288 | 23.121 |
| | HF-HC Diet | CONTROL | 10.3500 | 9.2111 | .269 | -8.390 | 29.090 |
| | | HF-HC Diet+1XOryzanol | 9.7667 | 9.2111 | .297 | -8.973 | 28.507 |
| | HF-HC Diet+1XOryzanol | CONTROL | .5833 | 11.6512 | .960 | -23.121 | 24.288 |
| | | HF-HC Diet | -9.7667 | 9.2111 | .297 | -28.507 | 8.973 |
| ALT | CONTROL | HF-HC Diet | -.2958 | 4.9317 | .953 | -10.329 | 9.738 |
| | | HF-HC Diet+1XOryzanol | 1.3667 | 6.2381 | .828 | -11.325 | 14.058 |
| | HF-HC Diet | CONTROL | .2958 | 4.9317 | .953 | -9.738 | 10.329 |
| | | HF-HC Diet+1XOryzanol | 1.6625 | 4.9317 | .738 | -8.371 | 11.696 |
| | HF-HC Diet+1XOryzanol | CONTROL | -1.3667 | 6.2381 | .828 | -14.058 | 11.325 |
| | | HF-HC Diet | -1.6625 | 4.9317 | .738 | -11.696 | 8.371 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 0th day of HF-HC

## Day of Exposure = 15th day of HF-HC DIET

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 77.83 | 6.080 | 2.482 | 71.45 | 84.21 | 68 | 85 |
| | HF-HC Diet | 24 | 75.46 | 9.146 | 1.867 | 71.60 | 79.32 | 55 | 89 |
| | HF-HC Diet+1XOryzanol | 6 | 77.17 | 3.710 | 1.515 | 73.27 | 81.06 | 71 | 81 |
| | Total | 36 | 76.14 | 7.950 | 1.325 | 73.45 | 78.83 | 55 | 89 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CHOL | CONTROL | 6 | 105.783 | 11.7125 | 4.7816 | 93.492 | 118.075 | 90.5 | 121.3 |
| | HF-HC Diet | 24 | 108.804 | 20.1757 | 4.1183 | 100.285 | 117.324 | 54.1 | 146.3 |
| | HF-HC Diet+1XOryzanol | 6 | 100.917 | 30.9580 | 12.6385 | 68.428 | 133.405 | 74.0 | 154.1 |
| | Total | 36 | 106.986 | 20.8047 | 3.4675 | 99.947 | 114.025 | 54.1 | 154.1 |
| TRI | CONTROL | 6 | 175.250 | 30.4597 | 12.4351 | 143.285 | 207.215 | 147.7 | 222.9 |
| | HF-HC Diet | 24 | 172.492 | 42.5170 | 8.6788 | 154.538 | 190.445 | 91.4 | 277.9 |
| | HF-HC Diet+1XOryzanol | 6 | 155.933 | 37.2605 | 15.2115 | 116.831 | 195.036 | 125.7 | 220.3 |
| | Total | 36 | 170.192 | 39.5178 | 6.5863 | 156.821 | 183.563 | 91.4 | 277.9 |
| HDL | CONTROL | 6 | 82.750 | 7.5362 | 3.0767 | 74.841 | 90.659 | 72.9 | 95.0 |
| | HF-HC Diet | 24 | 94.038 | 15.1461 | 3.0917 | 87.642 | 100.433 | 68.9 | 136.5 |
| | HF-HC Diet+1XOryzanol | 6 | 82.750 | 21.7040 | 8.8606 | 59.973 | 105.527 | 67.2 | 113.3 |
| | Total | 36 | 90.275 | 15.9775 | 2.6629 | 84.869 | 95.681 | 67.2 | 136.5 |
| LDL | CONTROL | 6 | 18.450 | 3.4379 | 1.4035 | 14.842 | 22.058 | 14.2 | 24.3 |
| | HF-HC Diet | 24 | 19.571 | 6.1941 | 1.2644 | 16.955 | 22.186 | 11.3 | 35.6 |
| | HF-HC Diet+1XOryzanol | 6 | 17.867 | 12.4365 | 5.0772 | 4.815 | 30.918 | 8.5 | 42.1 |
| | Total | 36 | 19.100 | 7.0343 | 1.1724 | 16.720 | 21.480 | 8.5 | 42.1 |
| AST | CONTROL | 6 | 65.466 | 12.4712 | 20.1795 | 36.927 | 140.673 | 44.6 | 180.1 |
| | HF-HC Diet | 24 | 49.863 | 16.4597 | 3.3598 | 42.912 | 56.813 | 25.4 | 107.2 |
| | HF-HC Diet+1XOryzanol | 6 | 36.133 | 9.2612 | 3.7809 | 26.414 | 45.852 | 24.5 | 47.5 |
| | Total | 36 | 54.064 | 28.5200 | 4.7533 | 44.414 | 63.714 | 24.5 | 180.1 |
| ALT | CONTROL | 6 | 67.217 | 15.8138 | 6.4560 | 50.621 | 83.812 | 46.3 | 90.7 |
| | HF-HC Diet | 24 | 61.038 | 16.1230 | 3.2911 | 54.229 | 67.846 | 35.5 | 104.6 |
| | HF-HC Diet+1XOryzanol | 6 | 53.933 | 14.2806 | 5.8300 | 38.947 | 68.920 | 37.2 | 71.0 |
| | Total | 36 | 60.883 | 15.8385 | 2.6397 | 55.524 | 66.242 | 35.5 | 104.6 |

a. Day of Exposure = 15th day of HF-HC

Test of Homogeneity of Variances[a]

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | 4.130 | 2 | 33 | .025 |
| CHOL | 2.266 | 2 | 33 | .120 |
| TRI | .176 | 2 | 33 | .839 |
| HDL | 3.105 | 2 | 33 | .058 |
| LDL | 2.651 | 2 | 33 | .086 |
| AST | 7.731 | 2 | 33 | .002 |
| ALT | .015 | 2 | 33 | .985 |

a. Day of Exposure = 15th day of HF-HC

ANOVA[a]

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Glucose | Between Groups | 34.681 | 2 | 17.340 | .263 | .771 |
| | Within Groups | 2177.625 | 33 | 65.989 | | |
| | Total | 2212.306 | 35 | | | |
| CHOL | Between Groups | 309.037 | 2 | 154.518 | .344 | .712 |
| | Within Groups | 14840.226 | 33 | 449.704 | | |
| | Total | 15149.263 | 35 | | | |
| TRI | Between Groups | 1500.281 | 2 | 750.140 | .466 | .632 |
| | Within Groups | 53157.707 | 33 | 1610.840 | | |
| | Total | 54657.988 | 35 | | | |
| HDL | Between Groups | 1019.261 | 2 | 509.631 | 2.125 | .136 |
| | Within Groups | 7915.566 | 33 | 239.866 | | |
| | Total | 8934.828 | 35 | | | |
| LDL | Between Groups | 16.982 | 2 | 8.491 | .163 | .850 |
| | Within Groups | 1714.878 | 33 | 51.966 | | |
| | Total | 1731.860 | 35 | | | |
| AST | Between Groups | 9592.253 | 2 | 4796.127 | 8.385 | .001 |
| | Within Groups | 18876.390 | 33 | 572.012 | | |
| | Total | 28468.643 | 35 | | | |
| ALT | Between Groups | 531.052 | 2 | 265.526 | 1.062 | .357 |
| | Within Groups | 8248.938 | 33 | 249.968 | | |
| | Total | 8779.990 | 35 | | | |

a. Day of Exposure = 15th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 2.375 | 3.708 | .526 | -5.17 | 9.92 |
| | | HF-HC Diet+1XOryzanol | .667 | 4.690 | .888 | -8.88 | 10.21 |
| | HF-HC Diet | CONTROL | -2.375 | 3.708 | .526 | -9.92 | 5.17 |
| | | HF-HC Diet+1XOryzanol | -1.708 | 3.708 | .648 | -9.25 | 5.84 |
| | HF-HC Diet+1XOryzanol | CONTROL | -.667 | 4.690 | .888 | -10.21 | 8.88 |
| | | HF-HC Diet | 1.708 | 3.708 | .648 | -5.84 | 9.25 |
| CHOL | CONTROL | HF-HC Diet | -3.0208 | 9.6793 | .757 | -22.713 | 16.672 |
| | | HF-HC | 4.8667 | 12.2434 | .694 | -20.043 | 29.776 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Diet+1XOryzanol | | | | | |
| | HF-HC Diet | CONTROL | 3.0208 | 9.6793 | .757 | -16.672 | 22.713 |
| | | HF-HC Diet+1XOryzanol | 7.8875 | 9.6793 | .421 | -11.805 | 27.580 |
| | HF-HC Diet+1XOryzanol | CONTROL | -4.8667 | 12.2434 | .694 | -29.776 | 20.043 |
| | | HF-HC Diet | -7.8875 | 9.6793 | .421 | -27.580 | 11.805 |
| TRI | CONTROL | HF-HC Diet | 2.7583 | 18.3192 | .881 | -34.512 | 40.029 |
| | | HF-HC Diet+1XOryzanol | 19.3167 | 23.1721 | .410 | -27.827 | 66.461 |
| | HF-HC Diet | CONTROL | -2.7583 | 18.3192 | .881 | -40.029 | 34.512 |
| | | HF-HC Diet+1XOryzanol | 16.5583 | 18.3192 | .373 | -20.712 | 53.829 |
| | HF-HC Diet+1XOryzanol | CONTROL | -19.3167 | 23.1721 | .410 | -66.461 | 27.827 |
| | | HF-HC Diet | -16.5583 | 18.3192 | .373 | -53.829 | 20.712 |
| HDL | CONTROL | HF-HC Diet | -11.2875 | 7.0691 | .120 | -25.670 | 3.095 |
| | | HF-HC Diet+1XOryzanol | .0000 | 8.9418 | 1.000 | -18.192 | 18.192 |
| | HF-HC Diet | CONTROL | 11.2875 | 7.0691 | .120 | -3.095 | 25.670 |
| | | HF-HC Diet+1XOryzanol | 11.2875 | 7.0691 | .120 | -3.095 | 25.670 |
| | HF-HC Diet+1XOryzanol | CONTROL | .0000 | 8.9418 | 1.000 | -18.192 | 18.192 |
| | | HF-HC Diet | -11.2875 | 7.0691 | .120 | -25.670 | 3.095 |
| LDL | CONTROL | HF-HC Diet | -1.1208 | 3.2903 | .736 | -7.815 | 5.573 |
| | | HF-HC Diet+1XOryzanol | .5833 | 4.1620 | .889 | -7.884 | 9.051 |
| | HF-HC Diet | CONTROL | 1.1208 | 3.2903 | .736 | -5.573 | 7.815 |
| | | HF-HC Diet+1XOryzanol | 1.7042 | 3.2903 | .608 | -4.990 | 8.398 |
| | HF-HC Diet+1XOryzanol | CONTROL | -.5833 | 4.1620 | .889 | -9.051 | 7.884 |
| | | HF-HC Diet | -1.7042 | 3.2903 | .608 | -8.398 | 4.990 |
| AST | CONTROL | HF-HC Diet | 38.9375* | 10.9165 | .001 | 16.728 | 61.147 |
| | | HF-HC Diet+1XOryzanol | 52.6667* | 13.8084 | .001 | 24.573 | 80.760 |
| | HF-HC Diet | CONTROL | -38.9375* | 10.9165 | .001 | -61.147 | -16.728 |
| | | HF-HC Diet+1XOryzanol | 13.7292 | 10.9165 | .217 | -8.481 | 35.939 |
| | HF-HC Diet+1XOryzanol | CONTROL | -52.6667* | 13.8084 | .001 | -80.760 | -24.573 |
| | | HF-HC Diet | -13.7292 | 10.9165 | .217 | -35.939 | 8.481 |
| ALT | CONTROL | HF-HC Diet | 6.1792 | 7.2164 | .398 | -8.503 | 20.861 |
| | | HF-HC Diet+1XOryzanol | 13.2833 | 9.1281 | .155 | -5.288 | 31.855 |
| | HF-HC Diet | CONTROL | -6.1792 | 7.2164 | .398 | -20.861 | 8.503 |
| | | HF-HC Diet+1XOryzanol | 7.1042 | 7.2164 | .332 | -7.578 | 21.786 |
| | HF-HC Diet+1XOryzanol | CONTROL | -13.2833 | 9.1281 | .155 | -31.855 | 5.288 |
| | | HF-HC Diet | -7.1042 | 7.2164 | .332 | -21.786 | 7.578 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 15th day of HF-HC

## Day of Exposure = 15th day of HF-HC DIET
## Kruskal-Wallis Test

Ranks[a]

| Test group | | N | Mean Rank |
|---|---|---|---|
| Glucose | CONTROL | 6 | 20.33 |
| | HF-HC Diet | 24 | 18.04 |
| | HF-HC Diet+1XOryzanol | 6 | 18.50 |
| | Total | 36 | |
| AST | CONTROL | 6 | 29.50 |
| | HF-HC Diet | 24 | 18.29 |
| | HF-HC Diet+1XOryzanol | 6 | 8.33 |
| | Total | 36 | |

a. Day of Exposure = 15th day of HF-HC

Test Statistics[a,b,c]

| | Glucose | AST |
|---|---|---|
| Chi-Square | .228 | 12.142 |
| df | 2 | 2 |
| Asymp. Sig. | .892 | .002 |

a. Day of Exposure = 15th day of HF-HC
b. Kruskal Wallis Test
c. Grouping Variable: Test group

## Day of Exposure = 15th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 16.92 | 101.50 |
| | HF-HC Diet | 24 | 15.15 | 363.50 |
| | Total | 30 | | |
| AST | CONTROL | 6 | 23.83 | 143.00 |
| | HF-HC Diet | 24 | 13.42 | 322.00 |
| | Total | 30 | | |

a. Day of Exposure = 15th day of HF-HC

Test Statistics[a,b]

| | Glucose | AST |
|---|---|---|

| | | |
|---|---|---|
| Mann-Whitney U | 63.500 | 22.000 |
| Wilcoxon W | 363.500 | 322.000 |
| Z | -.441 | -2.593 |
| Asymp. Sig. (2-tailed) | .659 | .010 |
| Exact Sig. [2*(1-tailed Sig.)] | .667[c] | .008[c] |

a. Day of Exposure = 15th day of HF-HC

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 6.92 | 41.50 |
| | HF-HC Diet+1XOryzanol | 6 | 6.08 | 36.50 |
| | Total | 12 | | |
| AST | CONTROL | 6 | 9.17 | 55.00 |
| | HF-HC Diet+1XOryzanol | 6 | 3.83 | 23.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of HF-HC

Test Statistics[a,b]

| | Glucose | AST |
|---|---|---|
| Mann-Whitney U | 15.500 | 2.000 |
| Wilcoxon W | 36.500 | 23.000 |
| Z | -.401 | -2.562 |
| Asymp. Sig. (2-tailed) | .688 | .010 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[c] | .009[c] |

a. Day of Exposure = 15th day of HF-HC

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 24 | 15.40 | 369.50 |
| | HF-HC Diet+1XOryzanol | 6 | 15.92 | 95.50 |

| | | | | |
|---|---|---|---|---|
| | Total | 30 | | |
| AST | HF-HC Diet | 24 | 17.38 | 417.00 |
| | HF-HC Diet+1XOryzanol | 6 | 8.00 | 48.00 |
| | Total | 30 | | |

a. Day of Exposure = 15th day of HF-HC

| Test Statistics[a,b] | | |
|---|---|---|
| | Glucose | AST |
| Mann-Whitney U | 69.500 | 27.000 |
| Wilcoxon W | 369.500 | 48.000 |
| Z | -.130 | -2.334 |
| Asymp. Sig. (2-tailed) | .897 | .020 |
| Exact Sig. [2*(1-tailed Sig.)] | .900[c] | .018[c] |

a. Day of Exposure = 15th day of HF-HC

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30th day of HF-HC DIET

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 76.50 | 4.461 | 1.821 | 71.82 | 81.18 | 71 | 81 |
| | HF-HC Diet | 24 | 77.67 | 7.233 | 1.476 | 74.61 | 80.72 | 64 | 90 |
| | HF-HC Diet+1XOryzanol | 6 | 76.33 | 5.046 | 2.060 | 71.04 | 81.63 | 70 | 83 |
| | Total | 36 | 77.25 | 6.420 | 1.070 | 75.08 | 79.42 | 64 | 90 |
| CHOL | CONTROL | 6 | 88.067 | 9.3573 | 3.8201 | 78.247 | 97.887 | 78.4 | 105.1 |
| | HF-HC Diet | 24 | 121.904 | 18.1252 | 3.6998 | 114.251 | 129.558 | 88.4 | 153.6 |
| | HF-HC Diet+1XOryzanol | 6 | 117.017 | 26.3236 | 10.7466 | 89.392 | 144.642 | 80.5 | 160.3 |
| | Total | 36 | 115.450 | 22.0208 | 3.6701 | 107.999 | 122.901 | 78.4 | 160.3 |
| TRI | CONTROL | 6 | 166.950 | 24.3130 | 9.9257 | 141.435 | 192.465 | 136.3 | 202.4 |
| | HF-HC Diet | 24 | 274.671 | 41.3924 | 8.4492 | 257.192 | 292.149 | 199.4 | 349.3 |
| | HF-HC Diet+1XOryzanol | 6 | 251.317 | 65.2020 | 26.6186 | 182.891 | 319.742 | 133.1 | 315.4 |
| | Total | 36 | 252.825 | 58.3911 | 9.7319 | 233.068 | 272.582 | 133.1 | 349.3 |
| HDL | CONTROL | 6 | 68.067 | 4.3743 | 1.7858 | 63.476 | 72.657 | 62.2 | 73.8 |
| | HF-HC Diet | 23 | 78.239 | 9.8909 | 2.0624 | 73.962 | 82.516 | 65.0 | 104.1 |
| | HF-HC Diet+1XOryzanol | 6 | 78.233 | 14.6105 | 5.9647 | 62.901 | 93.566 | 63.5 | 100.4 |
| | Total | 35 | 76.494 | 10.6129 | 1.7939 | 72.849 | 80.140 | 62.2 | 104.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LDL | CONTROL | 6 | 19.117 | 5.4301 | 2.2168 | 13.418 | 24.815 | 14.8 | 29.7 |
| | HF-HC Diet | 24 | 30.904 | 12.5255 | 2.5568 | 25.615 | 36.193 | 13.4 | 71.2 |
| | HF-HC Diet+1XOryzanol | 6 | 28.600 | 11.7710 | 4.8055 | 16.247 | 40.953 | 17.6 | 48.8 |
| | Total | 36 | 28.556 | 12.0897 | 2.0149 | 24.465 | 32.646 | 13.4 | 71.2 |
| AST | CONTROL | 6 | 34.000 | 7.4544 | 3.0432 | 26.177 | 41.823 | 23.5 | 42.5 |
| | HF-HC Diet | 23 | 45.383 | 25.4902 | 5.3151 | 34.360 | 56.405 | 22.4 | 127.9 |
| | HF-HC Diet+1XOryzanol | 6 | 55.933 | 42.0645 | 17.1728 | 11.789 | 100.077 | 20.6 | 132.3 |
| | Total | 35 | 45.240 | 27.0425 | 4.5710 | 35.951 | 54.529 | 20.6 | 132.3 |
| ALT | CONTROL | 6 | 43.567 | 6.1282 | 2.5018 | 37.136 | 49.998 | 36.2 | 52.2 |
| | HF-HC Diet | 24 | 64.663 | 24.0816 | 4.9156 | 54.494 | 74.831 | 41.8 | 135.1 |
| | HF-HC Diet+1XOryzanol | 6 | 56.500 | 9.5144 | 3.8842 | 46.515 | 66.485 | 44.1 | 66.8 |
| | Total | 36 | 59.786 | 21.5091 | 3.5849 | 52.508 | 67.064 | 36.2 | 135.1 |

a. Day of Exposure = 30th day of HF-HC

Test of Homogeneity of Variances[a]

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | .677 | 2 | 33 | .515 |
| CHOL | 2.066 | 2 | 33 | .143 |
| TRI | 1.859 | 2 | 33 | .172 |
| HDL | 4.006 | 2 | 32 | .028 |
| LDL | 1.470 | 2 | 33 | .245 |
| AST | 3.035 | 2 | 32 | .062 |
| ALT | 2.091 | 2 | 33 | .140 |

a. Day of Exposure = 30th day of HF-HC

ANOVA[a]

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Glucose | Between Groups | 12.583 | 2 | 6.292 | .145 | .865 |
| | Within Groups | 1430.167 | 33 | 43.338 | | |
| | Total | 1442.750 | 35 | | | |
| CHOL | Between Groups | 5513.559 | 2 | 2756.779 | 7.939 | .002 |
| | Within Groups | 11458.511 | 33 | 347.228 | | |
| | Total | 16972.070 | 35 | | | |
| TRI | Between Groups | 55714.515 | 2 | 27857.257 | 14.450 | .000 |
| | Within Groups | 63618.713 | 33 | 1927.840 | | |
| | Total | 119333.228 | 35 | | | |
| HDL | Between Groups | 514.317 | 2 | 257.159 | 2.482 | .100 |
| | Within Groups | 3315.261 | 32 | 103.602 | | |
| | Total | 3829.579 | 34 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| LDL | Between Groups | 666.951 | 2 | 333.475 | 2.474 | .100 |
| | Within Groups | 4448.658 | 33 | 134.808 | | |
| | Total | 5115.609 | 35 | | | |
| AST | Between Groups | 1444.578 | 2 | 722.289 | .987 | .384 |
| | Within Groups | 23419.486 | 32 | 731.859 | | |
| | Total | 24864.064 | 34 | | | |
| ALT | Between Groups | 2213.913 | 2 | 1106.957 | 2.613 | .088 |
| | Within Groups | 13978.610 | 33 | 423.594 | | |
| | Total | 16192.523 | 35 | | | |

a. Day of Exposure = 30th day of HF-HC

## Post Hoc Tests

Multiple Comparisons[a]

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | 95% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|---|
| Glucose | CONTROL | HF-HC Diet | -1.167 | 3.005 | .700 | -7.28 | 4.95 |
| | | HF-HC Diet+1XOryzanol | .167 | 3.801 | .965 | -7.57 | 7.90 |
| | HF-HC Diet | CONTROL | 1.167 | 3.005 | .700 | -4.95 | 7.28 |
| | | HF-HC Diet+1XOryzanol | 1.333 | 3.005 | .660 | -4.78 | 7.45 |
| | HF-HC Diet+1XOryzanol | CONTROL | -.167 | 3.801 | .965 | -7.90 | 7.57 |
| | | HF-HC Diet | -1.333 | 3.005 | .660 | -7.45 | 4.78 |
| CHOL | CONTROL | HF-HC Diet | -33.8375* | 8.5052 | .000 | -51.142 | -16.533 |
| | | HF-HC Diet+1XOryzanol | -28.9500* | 10.7584 | .011 | -50.838 | -7.062 |
| | HF-HC Diet | CONTROL | 33.8375* | 8.5052 | .000 | 16.533 | 51.142 |
| | | HF-HC Diet+1XOryzanol | 4.8875 | 8.5052 | .569 | -12.417 | 22.192 |
| | HF-HC Diet+1XOryzanol | CONTROL | 28.9500* | 10.7584 | .011 | 7.062 | 50.838 |
| | | HF-HC Diet | -4.8875 | 8.5052 | .569 | -22.192 | 12.417 |
| TRI | CONTROL | HF-HC Diet | -107.7208* | 20.0408 | .000 | -148.494 | -66.948 |
| | | HF-HC Diet+1XOryzanol | -84.3667* | 25.3498 | .002 | -135.941 | -32.792 |
| | HF-HC Diet | CONTROL | 107.7208* | 20.0408 | .000 | 66.948 | 148.494 |
| | | HF-HC Diet+1XOryzanol | 23.3542 | 20.0408 | .252 | -17.419 | 64.127 |
| | HF-HC Diet+1XOryzanol | CONTROL | 84.3667* | 25.3498 | .002 | 32.792 | 135.941 |
| | | HF-HC Diet | -23.3542 | 20.0408 | .252 | -64.127 | 17.419 |
| HDL | CONTROL | HF-HC Diet | -10.1725* | 4.6660 | .037 | -19.677 | -.668 |
| | | HF-HC Diet+1XOryzanol | -10.1667 | 5.8766 | .093 | -22.137 | 1.803 |
| | HF-HC Diet | CONTROL | 10.1725* | 4.6660 | .037 | .668 | 19.677 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XOryzanol | .0058 | 4.6660 | .999 | -9.499 | 9.510 |
| | HF-HC Diet+1XOryzanol | CONTROL | 10.1667 | 5.8766 | .093 | -1.803 | 22.137 |
| | | HF-HC Diet | -.0058 | 4.6660 | .999 | -9.510 | 9.499 |
| LDL | CONTROL | HF-HC Diet | -11.7875* | 5.2995 | .033 | -22.569 | -1.006 |
| | | HF-HC Diet+1XOryzanol | -9.4833 | 6.7034 | .167 | -23.122 | 4.155 |
| | HF-HC Diet | CONTROL | 11.7875* | 5.2995 | .033 | 1.006 | 22.569 |
| | | HF-HC Diet+1XOryzanol | 2.3042 | 5.2995 | .667 | -8.478 | 13.086 |
| | HF-HC Diet+1XOryzanol | CONTROL | 9.4833 | 6.7034 | .167 | -4.155 | 23.122 |
| | | HF-HC Diet | -2.3042 | 5.2995 | .667 | -13.086 | 8.478 |
| AST | CONTROL | HF-HC Diet | -11.3826 | 12.4015 | .366 | -36.644 | 13.878 |
| | | HF-HC Diet+1XOryzanol | -21.9333 | 15.6190 | .170 | -53.748 | 9.882 |
| | HF-HC Diet | CONTROL | 11.3826 | 12.4015 | .366 | -13.878 | 36.644 |
| | | HF-HC Diet+1XOryzanol | -10.5507 | 12.4015 | .401 | -35.812 | 14.710 |
| | HF-HC Diet+1XOryzanol | CONTROL | 21.9333 | 15.6190 | .170 | -9.882 | 53.748 |
| | | HF-HC Diet | 10.5507 | 12.4015 | .401 | -14.710 | 35.812 |
| ALT | CONTROL | HF-HC Diet | -21.0958* | 9.3941 | .032 | -40.208 | -1.983 |
| | | HF-HC Diet+1XOryzanol | -12.9333 | 11.8827 | .284 | -37.109 | 11.242 |
| | HF-HC Diet | CONTROL | 21.0958* | 9.3941 | .032 | 1.983 | 40.208 |
| | | HF-HC Diet+1XOryzanol | 8.1625 | 9.3941 | .391 | -10.950 | 27.275 |
| | HF-HC Diet+1XOryzanol | CONTROL | 12.9333 | 11.8827 | .284 | -11.242 | 37.109 |
| | | HF-HC Diet | -8.1625 | 9.3941 | .391 | -27.275 | 10.950 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 30th day of HF-HC

## Day of Exposure = 30th day of HF-HC DIET
## Kruskal-Wallis Test

Ranks[a]

| Test group | | N | Mean Rank |
|---|---|---|---|
| HDL | CONTROL | 6 | 8.83 |
| | HF-HC Diet | 23 | 20.33 |
| | HF-HC Diet+1XOryzanol | 6 | 18.25 |
| | Total | 35 | |

a. Day of Exposure = 30th day of HF-HC

Test Statistics[a,b,c]

| | HDL |
|---|---|
| Chi-Square | 5.994 |

| | |
|---|---|
| df | 2 |
| Asymp. Sig. | .050 |

a. Day of Exposure = 30th day of HF-HC
b. Kruskal Wallis Test
c. Grouping Variable: Test group

## Day of Exposure = 30th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 7.08 | 42.50 |
| | HF-HC Diet | 23 | 17.07 | 392.50 |
| | Total | 29 | | |

a. Day of Exposure = 30th day of HF-HC

Test Statistics[a,b]

| | HDL |
|---|---|
| Mann-Whitney U | 21.500 |
| Wilcoxon W | 42.500 |
| Z | -2.558 |
| Asymp. Sig. (2-tailed) | .011 |
| Exact Sig. [2*(1-tailed Sig.)] | .008[c] |

a. Day of Exposure = 30th day of HF-HC
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 5.25 | 31.50 |
| | HF-HC Diet+1XOryzanol | 6 | 7.75 | 46.50 |
| | Total | 12 | | |

a. Day of Exposure = 30th day of HF-HC

Test Statistics[a,b]

| | HDL |
|---|---|
| Mann-Whitney U | 10.500 |

| | |
|---|---|
| Wilcoxon W | 31.500 |
| Z | -1.205 |
| Asymp. Sig. (2-tailed) | .228 |
| Exact Sig. [2*(1-tailed Sig.)] | .240[c] |

a. Day of Exposure = 30th day of HF-HC
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30th day of HF-HC DIET
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet | 23 | 15.26 | 351.00 |
| | HF-HC Diet+1XOryzanol | 6 | 14.00 | 84.00 |
| | Total | 29 | | |

a. Day of Exposure = 30th day of HF-HC

Test Statistics[a,b]

| | HDL |
|---|---|
| Mann-Whitney U | 63.000 |
| Wilcoxon W | 84.000 |
| Z | -.323 |
| Asymp. Sig. (2-tailed) | .747 |
| Exact Sig. [2*(1-tailed Sig.)] | .773[c] |

a. Day of Exposure = 30th day of HF-HC
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 45th day of HF-HC DIET

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 86.67 | 5.007 | 2.044 | 81.41 | 91.92 | 79 | 92 |
| | HF-HC Diet | 24 | 83.25 | 9.502 | 1.940 | 79.24 | 87.26 | 72 | 107 |
| | HF-HC Diet+1XOryzanol | 6 | 83.17 | 6.969 | 2.845 | 75.85 | 90.48 | 72 | 91 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | 36 | 83.81 | 8.458 | 1.410 | 80.94 | 86.67 | 72 | 107 |
| CHOL | CONTROL | 6 | 97.550 | 16.0618 | 6.5572 | 80.694 | 114.406 | 70.5 | 114.9 |
| | HF-HC Diet | 24 | 158.500 | 22.1301 | 4.5173 | 149.155 | 167.845 | 126.4 | 217.9 |
| | HF-HC Diet+1XOryzanol | 6 | 127.633 | 23.3435 | 9.5299 | 103.136 | 152.131 | 91.9 | 163.6 |
| | Total | 36 | 143.197 | 31.5568 | 5.2595 | 132.520 | 153.875 | 70.5 | 217.9 |
| TRI | CONTROL | 6 | 199.817 | 34.1002 | 13.9213 | 164.031 | 235.603 | 156.7 | 251.4 |
| | HF-HC Diet | 24 | 360.692 | 66.5266 | 13.5797 | 332.600 | 388.783 | 224.4 | 474.5 |
| | HF-HC Diet+1XOryzanol | 6 | 259.383 | 34.3036 | 14.0044 | 223.384 | 295.383 | 208.0 | 315.5 |
| | Total | 36 | 316.994 | 86.4566 | 14.4094 | 287.742 | 346.247 | 156.7 | 474.5 |
| HDL | CONTROL | 6 | 66.067 | 11.5834 | 4.7289 | 53.911 | 78.223 | 45.9 | 81.6 |
| | HF-HC Diet | 24 | 93.842 | 16.0694 | 3.2802 | 87.056 | 100.627 | 74.7 | 129.1 |
| | HF-HC Diet+1XOryzanol | 6 | 80.050 | 11.9688 | 4.8862 | 67.490 | 92.610 | 62.1 | 93.6 |
| | Total | 36 | 86.914 | 18.0226 | 3.0038 | 80.816 | 93.012 | 45.9 | 129.1 |
| LDL | CONTROL | 6 | 14.483 | 3.6832 | 1.5036 | 10.618 | 18.349 | 10.2 | 20.3 |
| | HF-HC Diet | 24 | 32.354 | 13.1319 | 2.6805 | 26.809 | 37.899 | 18.0 | 80.6 |
| | HF-HC Diet+1XOryzanol | 6 | 21.850 | 11.4453 | 4.6725 | 9.839 | 33.861 | 12.8 | 43.1 |
| | Total | 36 | 27.625 | 13.5880 | 2.2647 | 23.027 | 32.223 | 10.2 | 80.6 |
| AST | CONTROL | 6 | 43.533 | 4.4840 | 1.8306 | 38.828 | 48.239 | 37.8 | 48.7 |
| | HF-HC Diet | 24 | 56.828 | 14.2946 | 2.9179 | 50.792 | 62.864 | 37.8 | 95.8 |
| | HF-HC Diet+1XOryzanol | 6 | 58.900 | 19.3778 | 7.9110 | 38.564 | 79.236 | 34.2 | 87.5 |
| | Total | 36 | 54.958 | 14.7726 | 2.4621 | 49.959 | 59.956 | 34.2 | 95.8 |
| ALT | CONTROL | 6 | 49.667 | 4.4067 | 1.7990 | 45.042 | 54.291 | 46.0 | 55.7 |
| | HF-HC Diet | 24 | 69.478 | 21.4323 | 4.3748 | 60.428 | 78.528 | 37.8 | 122.0 |
| | HF-HC Diet+1XOryzanol | 6 | 63.883 | 13.9346 | 5.6888 | 49.260 | 78.507 | 51.7 | 84.6 |
| | Total | 36 | 65.244 | 19.6615 | 3.2769 | 58.591 | 71.896 | 37.8 | 122.0 |

a. Day of Exposure = 45th day of HF-HC

Test of Homogeneity of Variances[a]

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | .966 | 2 | 33 | .391 |
| CHOL | .460 | 2 | 33 | .635 |
| TRI | 3.331 | 2 | 33 | .048 |
| HDL | 1.052 | 2 | 33 | .360 |
| LDL | 1.156 | 2 | 33 | .327 |
| AST | 2.744 | 2 | 33 | .079 |
| ALT | 2.622 | 2 | 33 | .088 |

a. Day of Exposure = 45th day of HF-HC

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Sum of Squares | df | Mean Square | F | Sig. |
| Glucose | Between Groups | 58.972 | 2 | 29.486 | .398 | .675 |
| | Within Groups | 2444.667 | 33 | 74.081 | | |
| | Total | 2503.639 | 35 | | | |
| CHOL | Between Groups | 19575.621 | 2 | 9787.811 | 21.141 | .000 |
| | Within Groups | 15278.568 | 33 | 462.987 | | |
| | Total | 34854.190 | 35 | | | |
| TRI | Between Groups | 148124.764 | 2 | 74062.382 | 21.535 | .000 |
| | Within Groups | 113491.055 | 33 | 3439.123 | | |
| | Total | 261615.819 | 35 | | | |
| HDL | Between Groups | 4042.176 | 2 | 2021.088 | 9.104 | .001 |
| | Within Groups | 7326.347 | 33 | 222.011 | | |
| | Total | 11368.523 | 35 | | | |
| LDL | Between Groups | 1773.085 | 2 | 886.542 | 6.239 | .005 |
| | Within Groups | 4689.103 | 33 | 142.094 | | |
| | Total | 6462.188 | 35 | | | |
| AST | Between Groups | 960.330 | 2 | 480.165 | 2.373 | .109 |
| | Within Groups | 6677.740 | 33 | 202.356 | | |
| | Total | 7638.070 | 35 | | | |
| ALT | Between Groups | 1897.338 | 2 | 948.669 | 2.691 | .083 |
| | Within Groups | 11632.841 | 33 | 352.510 | | |
| | Total | 13530.179 | 35 | | | |

a. Day of Exposure = 45th day of HF-HC

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LSD | | | | | | | | |
| | | | | | | | 95% Confidence Interval | |
| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 3.417 | 3.929 | .391 | | -4.58 | 11.41 |
| | | HF-HC Diet+1XOryzanol | 3.500 | 4.969 | .486 | | -6.61 | 13.61 |
| | HF-HC Diet | CONTROL | -3.417 | 3.929 | .391 | | -11.41 | 4.58 |
| | | HF-HC Diet+1XOryzanol | .083 | 3.929 | .983 | | -7.91 | 8.08 |
| | HF-HC Diet+1XOryzanol | CONTROL | -3.500 | 4.969 | .486 | | -13.61 | 6.61 |
| | | HF-HC Diet | -.083 | 3.929 | .983 | | -8.08 | 7.91 |
| CHOL | CONTROL | HF-HC Diet | -60.9500* | 9.8212 | .000 | | -80.931 | -40.969 |
| | | HF-HC Diet+1XOryzanol | -30.0833* | 12.4229 | .021 | | -55.358 | -4.809 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HF-HC Diet | CONTROL | 60.9500* | 9.8212 | .000 | 40.969 | 80.931 |
| | | HF-HC Diet+1XOryzanol | 30.8667* | 9.8212 | .004 | 10.885 | 50.848 |
| | HF-HC Diet+1XOryzanol | CONTROL | 30.0833* | 12.4229 | .021 | 4.809 | 55.358 |
| | | HF-HC Diet | -30.8667* | 9.8212 | .004 | -50.848 | -10.885 |
| TRI | CONTROL | HF-HC Diet | -160.8750* | 26.7672 | .000 | -215.333 | -106.417 |
| | | HF-HC Diet+1XOryzanol | -59.5667 | 33.8581 | .088 | -128.452 | 9.318 |
| | HF-HC Diet | CONTROL | 160.8750* | 26.7672 | .000 | 106.417 | 215.333 |
| | | HF-HC Diet+1XOryzanol | 101.3083* | 26.7672 | .001 | 46.850 | 155.767 |
| | HF-HC Diet+1XOryzanol | CONTROL | 59.5667 | 33.8581 | .088 | -9.318 | 128.452 |
| | | HF-HC Diet | -101.3083* | 26.7672 | .001 | -155.767 | -46.850 |
| HDL | CONTROL | HF-HC Diet | -27.7750* | 6.8009 | .000 | -41.612 | -13.938 |
| | | HF-HC Diet+1XOryzanol | -13.9833 | 8.6025 | .114 | -31.485 | 3.519 |
| | HF-HC Diet | CONTROL | 27.7750* | 6.8009 | .000 | 13.938 | 41.612 |
| | | HF-HC Diet+1XOryzanol | 13.7917 | 6.8009 | .051 | -.045 | 27.628 |
| | HF-HC Diet+1XOryzanol | CONTROL | 13.9833 | 8.6025 | .114 | -3.519 | 31.485 |
| | | HF-HC Diet | -13.7917 | 6.8009 | .051 | -27.628 | .045 |
| LDL | CONTROL | HF-HC Diet | -17.8708* | 5.4409 | .002 | -28.940 | -6.801 |
| | | HF-HC Diet+1XOryzanol | -7.3667 | 6.8822 | .292 | -21.369 | 6.635 |
| | HF-HC Diet | CONTROL | 17.8708* | 5.4409 | .002 | 6.801 | 28.940 |
| | | HF-HC Diet+1XOryzanol | 10.5042 | 5.4409 | .062 | -.565 | 21.574 |
| | HF-HC Diet+1XOryzanol | CONTROL | 7.3667 | 6.8822 | .292 | -6.635 | 21.369 |
| | | HF-HC Diet | -10.5042 | 5.4409 | .062 | -21.574 | .565 |
| AST | CONTROL | HF-HC Diet | -13.2950* | 6.4929 | .049 | -26.505 | -.085 |
| | | HF-HC Diet+1XOryzanol | -15.3667 | 8.2129 | .070 | -32.076 | 1.343 |
| | HF-HC Diet | CONTROL | 13.2950* | 6.4929 | .049 | .085 | 26.505 |
| | | HF-HC Diet+1XOryzanol | -2.0717 | 6.4929 | .752 | -15.282 | 11.138 |
| | HF-HC Diet+1XOryzanol | CONTROL | 15.3667 | 8.2129 | .070 | -1.343 | 32.076 |
| | | HF-HC Diet | 2.0717 | 6.4929 | .752 | -11.138 | 15.282 |
| ALT | CONTROL | HF-HC Diet | -19.8117* | 8.5697 | .027 | -37.247 | -2.376 |
| | | HF-HC Diet+1XOryzanol | -14.2167 | 10.8399 | .199 | -36.271 | 7.837 |
| | HF-HC Diet | CONTROL | 19.8117* | 8.5697 | .027 | 2.376 | 37.247 |
| | | HF-HC Diet+1XOryzanol | 5.5950 | 8.5697 | .518 | -11.840 | 23.030 |
| | HF-HC Diet+1XOryzanol | CONTROL | 14.2167 | 10.8399 | .199 | -7.837 | 36.271 |
| | | HF-HC Diet | -5.5950 | 8.5697 | .518 | -23.030 | 11.840 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 45th day of HF-HC

**Day of Exposure = 45th day of HF-HC DIET**

## Kruskal-Wallis Test

| Ranks[a] | | | |
|---|---|---|---|
| Test group | | N | Mean Rank |
| TRI | CONTROL | 6 | 4.33 |
| | HF-HC Diet | 24 | 23.79 |
| | HF-HC Diet+1XOryzanol | 6 | 11.50 |
| | Total | 36 | |

a. Day of Exposure = 45th day of HF-HC

| Test Statistics[a,b,c] | |
|---|---|
| | TRI |
| Chi-Square | 19.551 |
| df | 2 |
| Asymp. Sig. | .000 |

a. Day of Exposure = 45th day of HF-HC
b. Kruskal Wallis Test
c. Grouping Variable: Test group

## Day of Exposure = 45th day of HF-HC DIET
## Mann-Whitney Test

| Ranks[a] | | | | |
|---|---|---|---|---|
| Test group | | N | Mean Rank | Sum of Ranks |
| TRI | CONTROL | 6 | 4.00 | 24.00 |
| | HF-HC Diet | 24 | 18.38 | 441.00 |
| | Total | 30 | | |

a. Day of Exposure = 45th day of HF-HC

| Test Statistics[a,b] | |
|---|---|
| | TRI |
| Mann-Whitney U | 3.000 |
| Wilcoxon W | 24.000 |
| Z | -3.577 |
| Asymp. Sig. (2-tailed) | .000 |
| Exact Sig. [2*(1-tailed Sig.)] | .000[c] |

a. Day of Exposure = 45th day of HF-HC
b. Grouping Variable: Test group
c. Not corrected for ties.

**Day of Exposure = 45th day of HF-HC DIET**
**Mann-Whitney Test**

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| TRI | CONTROL | 6 | 3.83 | 23.00 |
| | HF-HC Diet+1XOryzanol | 6 | 9.17 | 55.00 |
| | Total | 12 | | |

a. Day of Exposure = 45th day of HF-HC

Test Statistics[a,b]

| | TRI |
|---|---|
| Mann-Whitney U | 2.000 |
| Wilcoxon W | 23.000 |
| Z | -2.562 |
| Asymp. Sig. (2-tailed) | .010 |
| Exact Sig. [2*(1-tailed Sig.)] | .009[c] |

a. Day of Exposure = 45th day of HF-HC
b. Grouping Variable: Test group
c. Not corrected for ties.

**Day of Exposure = 45th day of HF-HC DIET**
**Mann-Whitney Test**

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| TRI | HF-HC Diet | 24 | 17.92 | 430.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.83 | 35.00 |
| | Total | 30 | | |

a. Day of Exposure = 45th day of HF-HC

Test Statistics[a,b]

| | TRI |
|---|---|
| Mann-Whitney U | 14.000 |
| Wilcoxon W | 35.000 |
| Z | -3.007 |
| Asymp. Sig. (2-tailed) | .003 |
| Exact Sig. [2*(1-tailed Sig.)] | .001[c] |

a. Day of Exposure = 45th day of HF-HC

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 60th day of HF-HC DIET

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 82.17 | 9.326 | 3.807 | 72.38 | 91.95 | 71 | 97 |
| | HF-HC Diet | 24 | 77.04 | 8.121 | 1.658 | 73.61 | 80.47 | 63 | 102 |
| | HF-HC Diet+1XOryzanol | 6 | 79.50 | 11.537 | 4.710 | 67.39 | 91.61 | 68 | 94 |
| | Total | 36 | 78.31 | 8.870 | 1.478 | 75.30 | 81.31 | 63 | 102 |
| CHOL | CONTROL | 6 | 109.133 | 9.6053 | 3.9214 | 99.053 | 119.214 | 99.2 | 124.1 |
| | HF-HC Diet | 24 | 157.708 | 28.1881 | 5.7539 | 145.806 | 169.611 | 111.8 | 217.9 |
| | HF-HC Diet+1XOryzanol | 6 | 148.617 | 26.3351 | 10.7513 | 120.980 | 176.254 | 129.5 | 200.5 |
| | Total | 36 | 148.097 | 30.9524 | 5.1587 | 137.624 | 158.570 | 99.2 | 217.9 |
| TRI | CONTROL | 6 | 205.833 | 30.0670 | 12.2748 | 174.280 | 237.387 | 178.8 | 261.6 |
| | HF-HC Diet | 24 | 340.563 | 100.2043 | 20.4541 | 298.250 | 382.875 | 201.2 | 689.0 |
| | HF-HC Diet+1XOryzanol | 6 | 295.867 | 63.2794 | 25.8337 | 229.459 | 362.274 | 218.8 | 372.4 |
| | Total | 36 | 310.658 | 99.1661 | 16.5277 | 277.105 | 344.211 | 178.8 | 689.0 |
| HDL | CONTROL | 6 | 74.700 | 6.3416 | 2.5890 | 68.045 | 81.355 | 66.1 | 82.9 |
| | HF-HC Diet | 24 | 95.033 | 15.0297 | 3.0679 | 88.687 | 101.380 | 66.5 | 129.5 |
| | HF-HC Diet+1XOryzanol | 6 | 99.983 | 18.2278 | 7.4415 | 80.854 | 119.112 | 76.4 | 128.9 |
| | Total | 36 | 92.469 | 16.4307 | 2.7385 | 86.910 | 98.029 | 66.1 | 129.5 |
| LDL | CONTROL | 6 | 16.033 | 1.9572 | .7990 | 13.979 | 18.087 | 14.3 | 19.6 |
| | HF-HC Diet | 24 | 30.717 | 11.7824 | 2.4051 | 25.741 | 35.692 | 16.3 | 73.2 |
| | HF-HC Diet+1XOryzanol | 6 | 27.717 | 9.9397 | 4.0579 | 17.286 | 38.148 | 15.9 | 45.2 |
| | Total | 36 | 27.769 | 11.6387 | 1.9398 | 23.831 | 31.707 | 14.3 | 73.2 |
| AST | CONTROL | 6 | 66.317 | 20.5864 | 8.4044 | 44.713 | 87.921 | 37.9 | 90.7 |
| | HF-HC Diet | 24 | 56.513 | 17.8653 | 3.6467 | 48.969 | 64.056 | 30.7 | 102.4 |
| | HF-HC Diet+1XOryzanol | 6 | 54.433 | 12.7707 | 5.2136 | 41.031 | 67.835 | 40.2 | 70.7 |
| | Total | 36 | 57.800 | 17.5811 | 2.9302 | 51.851 | 63.749 | 30.7 | 102.4 |
| ALT | CONTROL | 6 | 50.850 | 13.6232 | 5.5616 | 36.553 | 65.147 | 34.9 | 75.2 |
| | HF-HC Diet | 24 | 59.042 | 14.9629 | 3.0543 | 52.723 | 65.360 | 38.1 | 92.1 |
| | HF-HC Diet+1XOryzanol | 6 | 63.617 | 7.3205 | 2.9886 | 55.934 | 71.299 | 50.8 | 72.1 |
| | Total | 36 | 58.439 | 14.0005 | 2.3334 | 53.702 | 63.176 | 34.9 | 92.1 |

a. Day of Exposure = 60th day of HF-HC

| Test of Homogeneity of Variances[a] | | | | |
|---|---|---|---|---|
| | Levene Statistic | df1 | df2 | Sig. |
| Glucose | 1.569 | 2 | 33 | .223 |
| CHOL | 2.915 | 2 | 33 | .068 |
| TRI | 1.357 | 2 | 33 | .271 |
| HDL | 1.774 | 2 | 33 | .186 |
| LDL | 1.991 | 2 | 33 | .153 |
| AST | .712 | 2 | 33 | .498 |
| ALT | 1.688 | 2 | 33 | .200 |
| a. Day of Exposure = 60th day of HF-HC | | | | |

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Sum of Squares | df | Mean Square | F | Sig. |
| Glucose | Between Groups | 136.347 | 2 | 68.174 | .860 | .433 |
| | Within Groups | 2617.292 | 33 | 79.312 | | |
| | Total | 2753.639 | 35 | | | |
| CHOL | Between Groups | 11327.690 | 2 | 5663.845 | 8.418 | .001 |
| | Within Groups | 22204.140 | 33 | 672.853 | | |
| | Total | 33531.830 | 35 | | | |
| TRI | Between Groups | 88704.665 | 2 | 44352.332 | 5.729 | .007 |
| | Within Groups | 255482.443 | 33 | 7741.892 | | |
| | Total | 344187.108 | 35 | | | |
| HDL | Between Groups | 2391.035 | 2 | 1195.517 | 5.590 | .008 |
| | Within Groups | 7057.882 | 33 | 213.875 | | |
| | Total | 9448.916 | 35 | | | |
| LDL | Between Groups | 1034.901 | 2 | 517.451 | 4.607 | .017 |
| | Within Groups | 3706.135 | 33 | 112.307 | | |
| | Total | 4741.036 | 35 | | | |
| AST | Between Groups | 542.992 | 2 | 271.496 | .872 | .428 |
| | Within Groups | 10275.388 | 33 | 311.375 | | |
| | Total | 10818.380 | 35 | | | |
| ALT | Between Groups | 515.124 | 2 | 257.562 | 1.339 | .276 |
| | Within Groups | 6345.342 | 33 | 192.283 | | |
| | Total | 6860.466 | 35 | | | |
| a. Day of Exposure = 60th day of HF-HC | | | | | | |

## Post Hoc Tests

Multiple Comparisons[a]

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 5.125 | 4.065 | .216 | -3.15 | 13.40 |
| | | HF-HC Diet+1XOryzanol | 2.667 | 5.142 | .607 | -7.79 | 13.13 |
| | HF-HC Diet | CONTROL | -5.125 | 4.065 | .216 | -13.40 | 3.15 |
| | | HF-HC Diet+1XOryzanol | -2.458 | 4.065 | .549 | -10.73 | 5.81 |
| | HF-HC Diet+1XOryzanol | CONTROL | -2.667 | 5.142 | .607 | -13.13 | 7.79 |
| | | HF-HC Diet | 2.458 | 4.065 | .549 | -5.81 | 10.73 |
| CHOL | CONTROL | HF-HC Diet | -48.5750* | 11.8397 | .000 | -72.663 | -24.487 |
| | | HF-HC Diet+1XOryzanol | -39.4833* | 14.9761 | .013 | -69.952 | -9.014 |
| | HF-HC Diet | CONTROL | 48.5750* | 11.8397 | .000 | 24.487 | 72.663 |
| | | HF-HC Diet+1XOryzanol | 9.0917 | 11.8397 | .448 | -14.996 | 33.180 |
| | HF-HC Diet+1XOryzanol | CONTROL | 39.4833* | 14.9761 | .013 | 9.014 | 69.952 |
| | | HF-HC Diet | -9.0917 | 11.8397 | .448 | -33.180 | 14.996 |
| TRI | CONTROL | HF-HC Diet | -134.7292* | 40.1609 | .002 | -216.437 | -53.021 |
| | | HF-HC Diet+1XOryzanol | -90.0333 | 50.7999 | .086 | -193.387 | 13.320 |
| | HF-HC Diet | CONTROL | 134.7292* | 40.1609 | .002 | 53.021 | 216.437 |
| | | HF-HC Diet+1XOryzanol | 44.6958 | 40.1609 | .274 | -37.012 | 126.404 |
| | HF-HC Diet+1XOryzanol | CONTROL | 90.0333 | 50.7999 | .086 | -13.320 | 193.387 |
| | | HF-HC Diet | -44.6958 | 40.1609 | .274 | -126.404 | 37.012 |
| HDL | CONTROL | HF-HC Diet | -20.3333* | 6.6751 | .005 | -33.914 | -6.753 |
| | | HF-HC Diet+1XOryzanol | -25.2833* | 8.4434 | .005 | -42.462 | -8.105 |
| | HF-HC Diet | CONTROL | 20.3333* | 6.6751 | .005 | 6.753 | 33.914 |
| | | HF-HC Diet+1XOryzanol | -4.9500 | 6.6751 | .464 | -18.531 | 8.631 |
| | HF-HC Diet+1XOryzanol | CONTROL | 25.2833* | 8.4434 | .005 | 8.105 | 42.462 |
| | | HF-HC Diet | 4.9500 | 6.6751 | .464 | -8.631 | 18.531 |
| LDL | CONTROL | HF-HC Diet | -14.6833* | 4.8371 | .005 | -24.524 | -4.842 |
| | | HF-HC Diet+1XOryzanol | -11.6833 | 6.1185 | .065 | -24.131 | .765 |
| | HF-HC Diet | CONTROL | 14.6833* | 4.8371 | .005 | 4.842 | 24.524 |
| | | HF-HC Diet+1XOryzanol | 3.0000 | 4.8371 | .539 | -6.841 | 12.841 |
| | HF-HC Diet+1XOryzanol | CONTROL | 11.6833 | 6.1185 | .065 | -.765 | 24.131 |
| | | HF-HC Diet | -3.0000 | 4.8371 | .539 | -12.841 | 6.841 |
| AST | CONTROL | HF-HC Diet | 9.8042 | 8.0542 | .232 | -6.582 | 26.191 |
| | | HF-HC Diet+1XOryzanol | 11.8833 | 10.1878 | .252 | -8.844 | 32.611 |
| | HF-HC Diet | CONTROL | -9.8042 | 8.0542 | .232 | -26.191 | 6.582 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XOryzanol | 2.0792 | 8.0542 | .798 | -14.307 | 18.466 |
| | HF-HC Diet+1XOryzanol | CONTROL | -11.8833 | 10.1878 | .252 | -32.611 | 8.844 |
| | | HF-HC Diet | -2.0792 | 8.0542 | .798 | -18.466 | 14.307 |
| ALT | CONTROL | HF-HC Diet | -8.1917 | 6.3292 | .205 | -21.069 | 4.685 |
| | | HF-HC Diet+1XOryzanol | -12.7667 | 8.0059 | .120 | -29.055 | 3.521 |
| | HF-HC Diet | CONTROL | 8.1917 | 6.3292 | .205 | -4.685 | 21.069 |
| | | HF-HC Diet+1XOryzanol | -4.5750 | 6.3292 | .475 | -17.452 | 8.302 |
| | HF-HC Diet+1XOryzanol | CONTROL | 12.7667 | 8.0059 | .120 | -3.521 | 29.055 |
| | | HF-HC Diet | 4.5750 | 6.3292 | .475 | -8.302 | 17.452 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 60th day of HF-HC

## Phase II -Bio Chemistry

## Day of Exposure = 1st day of Oryzanol exposure

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 82.17 | 9.326 | 3.807 | 72.38 | 91.95 | 71 | 97 |
| | HF-HC Diet | 6 | 73.83 | 5.154 | 2.104 | 68.42 | 79.24 | 70 | 84 |
| | HF-HC Diet+1XID Oryzanol | 6 | 73.83 | 5.193 | 2.120 | 68.38 | 79.28 | 69 | 82 |
| | HF-HC Diet+2XID Oryzanol | 6 | 78.33 | 9.668 | 3.947 | 68.19 | 88.48 | 63 | 90 |
| | HF-HC Diet+1XCO | 6 | 82.17 | 9.908 | 4.045 | 71.77 | 92.56 | 75 | 102 |
| | HF-HC Diet+1XOryzanol | 6 | 79.50 | 11.537 | 4.710 | 67.39 | 91.61 | 68 | 94 |
| | Total | 36 | 78.31 | 8.870 | 1.478 | 75.30 | 81.31 | 63 | 102 |
| CHOL | CONTROL | 6 | 109.133 | 9.6053 | 3.9214 | 99.053 | 119.214 | 99.2 | 124.1 |
| | HF-HC Diet | 6 | 159.300 | 24.4030 | 9.9625 | 133.691 | 184.909 | 122.0 | 182.6 |
| | HF-HC Diet+1XID Oryzanol | 6 | 152.050 | 36.6893 | 14.9784 | 113.547 | 190.553 | 111.8 | 217.9 |
| | HF-HC Diet+2XID Oryzanol | 6 | 143.633 | 19.2553 | 7.8609 | 123.426 | 163.841 | 124.5 | 170.2 |
| | HF-HC Diet+1XCO | 6 | 175.850 | 25.8557 | 10.5556 | 148.716 | 202.984 | 136.2 | 203.3 |
| | HF-HC Diet+1XOryzanol | 6 | 148.617 | 26.3351 | 10.7513 | 120.980 | 176.254 | 129.5 | 200.5 |
| | Total | 36 | 148.097 | 30.9524 | 5.1587 | 137.624 | 158.570 | 99.2 | 217.9 |
| TRI | CONTROL | 6 | 205.833 | 30.0670 | 12.2748 | 174.280 | 237.387 | 178.8 | 261.6 |
| | HF-HC Diet | 6 | 335.067 | 90.7658 | 37.0550 | 239.814 | 430.319 | 201.2 | 403.6 |
| | HF-HC Diet+1XID Oryzanol | 6 | 315.917 | 96.0766 | 39.2231 | 215.090 | 416.743 | 221.7 | 476.0 |
| | HF-HC Diet+2XID Oryzanol | 6 | 315.383 | 46.2955 | 18.9001 | 266.799 | 363.968 | 240.4 | 365.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HF-HC Diet+1XCO | 6 | 395.883 | 146.2100 | 59.6900 | 242.445 | 549.321 | 304.9 | 689.0 |
| | HF-HC Diet+1XOryzanol | 6 | 295.867 | 63.2794 | 25.8337 | 229.459 | 362.274 | 218.8 | 372.4 |
| | Total | 36 | 310.658 | 99.1661 | 16.5277 | 277.105 | 344.211 | 178.8 | 689.0 |
| HDL | CONTROL | 6 | 74.700 | 6.3416 | 2.5890 | 68.045 | 81.355 | 66.1 | 82.9 |
| | HF-HC Diet | 6 | 100.450 | 11.1767 | 4.5629 | 88.721 | 112.179 | 79.3 | 110.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 90.683 | 12.3993 | 5.0620 | 77.671 | 103.696 | 67.7 | 100.2 |
| | HF-HC Diet+2XID Oryzanol | 6 | 89.633 | 15.6215 | 6.3774 | 73.240 | 106.027 | 66.5 | 109.9 |
| | HF-HC Diet+1XCO | 6 | 99.367 | 20.0244 | 8.1749 | 78.352 | 120.381 | 71.9 | 129.5 |
| | HF-HC Diet+1XOryzanol | 6 | 99.983 | 18.2278 | 7.4415 | 80.854 | 119.112 | 76.4 | 128.9 |
| | Total | 36 | 92.469 | 16.4307 | 2.7385 | 86.910 | 98.029 | 66.1 | 129.5 |
| LDL | CONTROL | 6 | 16.033 | 1.9572 | .7990 | 13.979 | 18.087 | 14.3 | 19.6 |
| | HF-HC Diet | 6 | 28.500 | 6.5118 | 2.6584 | 21.666 | 35.334 | 22.3 | 38.7 |
| | HF-HC Diet+1XID Oryzanol | 6 | 31.083 | 21.1279 | 8.6254 | 8.911 | 53.256 | 16.3 | 73.2 |
| | HF-HC Diet+2XID Oryzanol | 6 | 27.983 | 6.3241 | 2.5818 | 21.347 | 34.620 | 18.5 | 34.1 |
| | HF-HC Diet+1XCO | 6 | 35.300 | 8.3415 | 3.4054 | 26.546 | 44.054 | 23.6 | 44.2 |
| | HF-HC Diet+1XOryzanol | 6 | 27.717 | 9.9397 | 4.0579 | 17.286 | 38.148 | 15.9 | 45.2 |
| | Total | 36 | 27.769 | 11.6387 | 1.9398 | 23.831 | 31.707 | 14.3 | 73.2 |
| AST | CONTROL | 6 | 66.317 | 20.5864 | 8.4044 | 44.713 | 87.921 | 37.9 | 90.7 |
| | HF-HC Diet | 6 | 61.267 | 21.9321 | 8.9538 | 38.250 | 84.283 | 43.1 | 102.4 |
| | HF-HC Diet+1XID Oryzanol | 6 | 47.317 | 13.2762 | 5.4200 | 33.384 | 61.249 | 30.7 | 69.2 |
| | HF-HC Diet+2XID Oryzanol | 6 | 61.383 | 20.4806 | 8.3612 | 39.890 | 82.876 | 43.3 | 89.2 |
| | HF-HC Diet+1XCO | 6 | 56.083 | 15.3025 | 6.2472 | 40.024 | 72.142 | 36.5 | 81.5 |
| | HF-HC Diet+1XOryzanol | 6 | 54.433 | 12.7707 | 5.2136 | 41.031 | 67.835 | 40.2 | 70.7 |
| | Total | 36 | 57.800 | 17.5811 | 2.9302 | 51.851 | 63.749 | 30.7 | 102.4 |
| ALT | CONTROL | 6 | 50.850 | 13.6232 | 5.5616 | 36.553 | 65.147 | 34.9 | 75.2 |
| | HF-HC Diet | 6 | 59.033 | 20.5358 | 8.3837 | 37.482 | 80.584 | 38.1 | 92.1 |
| | HF-HC Diet+1XID Oryzanol | 6 | 51.267 | 7.1043 | 2.9003 | 43.811 | 58.722 | 39.9 | 60.9 |
| | HF-HC Diet+2XID Oryzanol | 6 | 61.467 | 13.9032 | 5.6760 | 46.876 | 76.057 | 44.5 | 79.7 |
| | HF-HC Diet+1XCO | 6 | 64.400 | 15.8224 | 6.4595 | 47.795 | 81.005 | 45.1 | 87.7 |
| | HF-HC Diet+1XOryzanol | 6 | 63.617 | 7.3205 | 2.9886 | 55.934 | 71.299 | 50.8 | 72.1 |
| | Total | 36 | 58.439 | 14.0005 | 2.3334 | 53.702 | 63.176 | 34.9 | 92.1 |

a. Day of Exposure = 1st day of Oryzanol exposure

| Test of Homogeneity of Variances[a] | | | | |
|---|---|---|---|---|
| | Levene Statistic | df1 | df2 | Sig. |
| Glucose | 1.626 | 5 | 30 | .184 |
| CHOL | .992 | 5 | 30 | .439 |
| TRI | 1.938 | 5 | 30 | .117 |
| HDL | 1.231 | 5 | 30 | .319 |
| LDL | 2.192 | 5 | 30 | .081 |
| AST | 1.055 | 5 | 30 | .404 |
| ALT | 1.718 | 5 | 30 | .161 |
| a. Day of Exposure = 1st day of Oryzanol exposure | | | | |

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Sum of Squares | df | Mean Square | F | Sig. |
| Glucose | Between Groups | 427.472 | 5 | 85.494 | 1.103 | .380 |
| | Within Groups | 2326.167 | 30 | 77.539 | | |
| | Total | 2753.639 | 35 | | | |
| CHOL | Between Groups | 14698.345 | 5 | 2939.669 | 4.683 | .003 |
| | Within Groups | 18833.485 | 30 | 627.783 | | |
| | Total | 33531.830 | 35 | | | |
| TRI | Between Groups | 114696.703 | 5 | 22939.341 | 2.999 | .026 |
| | Within Groups | 229490.405 | 30 | 7649.680 | | |
| | Total | 344187.108 | 35 | | | |
| HDL | Between Groups | 2968.238 | 5 | 593.648 | 2.748 | .037 |
| | Within Groups | 6480.678 | 30 | 216.023 | | |
| | Total | 9448.916 | 35 | | | |
| LDL | Between Groups | 1236.058 | 5 | 247.212 | 2.116 | .091 |
| | Within Groups | 3504.978 | 30 | 116.833 | | |
| | Total | 4741.036 | 35 | | | |
| AST | Between Groups | 1329.440 | 5 | 265.888 | .841 | .532 |
| | Within Groups | 9488.940 | 30 | 316.298 | | |
| | Total | 10818.380 | 35 | | | |
| ALT | Between Groups | 1085.382 | 5 | 217.076 | 1.128 | .367 |
| | Within Groups | 5775.083 | 30 | 192.503 | | |
| | Total | 6860.466 | 35 | | | |
| a. Day of Exposure = 1st day of Oryzanol exposure | | | | | | |

## Post Hoc Tests

Multiple Comparisons[a]

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 8.333 | 5.084 | .112 | -2.05 | 18.72 |
| | | HF-HC Diet+1XID Oryzanol | 8.333 | 5.084 | .112 | -2.05 | 18.72 |
| | | HF-HC Diet+2XID Oryzanol | 3.833 | 5.084 | .457 | -6.55 | 14.22 |
| | | HF-HC Diet+1XCO | 0.000 | 5.084 | 1.000 | -10.38 | 10.38 |
| | | HF-HC Diet+1XOryzanol | 2.667 | 5.084 | .604 | -7.72 | 13.05 |
| | HF-HC Diet | CONTROL | -8.333 | 5.084 | .112 | -18.72 | 2.05 |
| | | HF-HC Diet+1XID Oryzanol | 0.000 | 5.084 | 1.000 | -10.38 | 10.38 |
| | | HF-HC Diet+2XID Oryzanol | -4.500 | 5.084 | .383 | -14.88 | 5.88 |
| | | HF-HC Diet+1XCO | -8.333 | 5.084 | .112 | -18.72 | 2.05 |
| | | HF-HC Diet+1XOryzanol | -5.667 | 5.084 | .274 | -16.05 | 4.72 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -8.333 | 5.084 | .112 | -18.72 | 2.05 |
| | | HF-HC Diet | 0.000 | 5.084 | 1.000 | -10.38 | 10.38 |
| | | HF-HC Diet+2XID Oryzanol | -4.500 | 5.084 | .383 | -14.88 | 5.88 |
| | | HF-HC Diet+1XCO | -8.333 | 5.084 | .112 | -18.72 | 2.05 |
| | | HF-HC Diet+1XOryzanol | -5.667 | 5.084 | .274 | -16.05 | 4.72 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | -3.833 | 5.084 | .457 | -14.22 | 6.55 |
| | | HF-HC Diet | 4.500 | 5.084 | .383 | -5.88 | 14.88 |
| | | HF-HC Diet+1XID Oryzanol | 4.500 | 5.084 | .383 | -5.88 | 14.88 |
| | | HF-HC Diet+1XCO | -3.833 | 5.084 | .457 | -14.22 | 6.55 |
| | | HF-HC Diet+1XOryzanol | -1.167 | 5.084 | .820 | -11.55 | 9.22 |
| | HF-HC Diet+1XCO | CONTROL | 0.000 | 5.084 | 1.000 | -10.38 | 10.38 |
| | | HF-HC Diet | 8.333 | 5.084 | .112 | -2.05 | 18.72 |
| | | HF-HC Diet+1XID Oryzanol | 8.333 | 5.084 | .112 | -2.05 | 18.72 |
| | | HF-HC Diet+2XID Oryzanol | 3.833 | 5.084 | .457 | -6.55 | 14.22 |
| | | HF-HC Diet+1XOryzanol | 2.667 | 5.084 | .604 | -7.72 | 13.05 |
| | HF-HC Diet+1XOryzanol | CONTROL | -2.667 | 5.084 | .604 | -13.05 | 7.72 |
| | | HF-HC Diet | 5.667 | 5.084 | .274 | -4.72 | 16.05 |
| | | HF-HC Diet+1XID Oryzanol | 5.667 | 5.084 | .274 | -4.72 | 16.05 |
| | | HF-HC Diet+2XID Oryzanol | 1.167 | 5.084 | .820 | -9.22 | 11.55 |
| | | HF-HC Diet+1XCO | -2.667 | 5.084 | .604 | -13.05 | 7.72 |
| CHOL | CONTROL | HF-HC Diet | -50.1667* | 14.4659 | .002 | -79.710 | -20.623 |
| | | HF-HC Diet+1XID | -42.9167* | 14.4659 | .006 | -72.460 | -13.373 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Oryzanol | | | | | |
| | | HF-HC Diet+2XID Oryzanol | -34.5000* | 14.4659 | .024 | -64.043 | -4.957 |
| | | HF-HC Diet+1XCO | -66.7167* | 14.4659 | .000 | -96.260 | -37.173 |
| | | HF-HC Diet+1XOryzanol | -39.4833* | 14.4659 | .011 | -69.027 | -9.940 |
| | HF-HC Diet | CONTROL | 50.1667* | 14.4659 | .002 | 20.623 | 79.710 |
| | | HF-HC Diet+1XID Oryzanol | 7.2500 | 14.4659 | .620 | -22.293 | 36.793 |
| | | HF-HC Diet+2XID Oryzanol | 15.6667 | 14.4659 | .287 | -13.877 | 45.210 |
| | | HF-HC Diet+1XCO | -16.5500 | 14.4659 | .262 | -46.093 | 12.993 |
| | | HF-HC Diet+1XOryzanol | 10.6833 | 14.4659 | .466 | -18.860 | 40.227 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 42.9167* | 14.4659 | .006 | 13.373 | 72.460 |
| | | HF-HC Diet | -7.2500 | 14.4659 | .620 | -36.793 | 22.293 |
| | | HF-HC Diet+2XID Oryzanol | 8.4167 | 14.4659 | .565 | -21.127 | 37.960 |
| | | HF-HC Diet+1XCO | -23.8000 | 14.4659 | .110 | -53.343 | 5.743 |
| | | HF-HC Diet+1XOryzanol | 3.4333 | 14.4659 | .814 | -26.110 | 32.977 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 34.5000* | 14.4659 | .024 | 4.957 | 64.043 |
| | | HF-HC Diet | -15.6667 | 14.4659 | .287 | -45.210 | 13.877 |
| | | HF-HC Diet+1XID Oryzanol | -8.4167 | 14.4659 | .565 | -37.960 | 21.127 |
| | | HF-HC Diet+1XCO | -32.2167* | 14.4659 | .034 | -61.760 | -2.673 |
| | | HF-HC Diet+1XOryzanol | -4.9833 | 14.4659 | .733 | -34.527 | 24.560 |
| | HF-HC Diet+1XCO | CONTROL | 66.7167* | 14.4659 | .000 | 37.173 | 96.260 |
| | | HF-HC Diet | 16.5500 | 14.4659 | .262 | -12.993 | 46.093 |
| | | HF-HC Diet+1XID Oryzanol | 23.8000 | 14.4659 | .110 | -5.743 | 53.343 |
| | | HF-HC Diet+2XID Oryzanol | 32.2167* | 14.4659 | .034 | 2.673 | 61.760 |
| | | HF-HC Diet+1XOryzanol | 27.2333 | 14.4659 | .069 | -2.310 | 56.777 |
| | HF-HC Diet+1XOryzanol | CONTROL | 39.4833* | 14.4659 | .011 | 9.940 | 69.027 |
| | | HF-HC Diet | -10.6833 | 14.4659 | .466 | -40.227 | 18.860 |
| | | HF-HC Diet+1XID Oryzanol | -3.4333 | 14.4659 | .814 | -32.977 | 26.110 |
| | | HF-HC Diet+2XID Oryzanol | 4.9833 | 14.4659 | .733 | -24.560 | 34.527 |
| | | HF-HC Diet+1XCO | -27.2333 | 14.4659 | .069 | -56.777 | 2.310 |
| TRI | CONTROL | HF-HC Diet | -129.2333* | 50.4965 | .016 | -232.361 | -26.106 |
| | | HF-HC Diet+1XID Oryzanol | -110.0833* | 50.4965 | .037 | -213.211 | -6.956 |
| | | HF-HC Diet+2XID Oryzanol | -109.5500* | 50.4965 | .038 | -212.678 | -6.422 |
| | | HF-HC Diet+1XCO | -190.0500* | 50.4965 | .001 | -293.178 | -86.922 |
| | | HF-HC Diet+1XOryzanol | -90.0333 | 50.4965 | .085 | -193.161 | 13.094 |
| | HF-HC Diet | CONTROL | 129.2333* | 50.4965 | .016 | 26.106 | 232.361 |
| | | HF-HC Diet+1XID Oryzanol | 19.1500 | 50.4965 | .707 | -83.978 | 122.278 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+2XID Oryzanol | 19.6833 | 50.4965 | .699 | -83.444 | 122.811 |
| | | HF-HC Diet+1XCO | -60.8167 | 50.4965 | .238 | -163.944 | 42.311 |
| | | HF-HC Diet+1XOryzanol | 39.2000 | 50.4965 | .444 | -63.928 | 142.328 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 110.0833* | 50.4965 | .037 | 6.956 | 213.211 |
| | | HF-HC Diet | -19.1500 | 50.4965 | .707 | -122.278 | 83.978 |
| | | HF-HC Diet+2XID Oryzanol | .5333 | 50.4965 | .992 | -102.594 | 103.661 |
| | | HF-HC Diet+1XCO | -79.9667 | 50.4965 | .124 | -183.094 | 23.161 |
| | | HF-HC Diet+1XOryzanol | 20.0500 | 50.4965 | .694 | -83.078 | 123.178 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 109.5500* | 50.4965 | .038 | 6.422 | 212.678 |
| | | HF-HC Diet | -19.6833 | 50.4965 | .699 | -122.811 | 83.444 |
| | | HF-HC Diet+1XID Oryzanol | -.5333 | 50.4965 | .992 | -103.661 | 102.594 |
| | | HF-HC Diet+1XCO | -80.5000 | 50.4965 | .121 | -183.628 | 22.628 |
| | | HF-HC Diet+1XOryzanol | 19.5167 | 50.4965 | .702 | -83.611 | 122.644 |
| | HF-HC Diet+1XCO | CONTROL | 190.0500* | 50.4965 | .001 | 86.922 | 293.178 |
| | | HF-HC Diet | 60.8167 | 50.4965 | .238 | -42.311 | 163.944 |
| | | HF-HC Diet+1XID Oryzanol | 79.9667 | 50.4965 | .124 | -23.161 | 183.094 |
| | | HF-HC Diet+2XID Oryzanol | 80.5000 | 50.4965 | .121 | -22.628 | 183.628 |
| | | HF-HC Diet+1XOryzanol | 100.0167 | 50.4965 | .057 | -3.111 | 203.144 |
| | HF-HC Diet+1XOryzanol | CONTROL | 90.0333 | 50.4965 | .085 | -13.094 | 193.161 |
| | | HF-HC Diet | -39.2000 | 50.4965 | .444 | -142.328 | 63.928 |
| | | HF-HC Diet+1XID Oryzanol | -20.0500 | 50.4965 | .694 | -123.178 | 83.078 |
| | | HF-HC Diet+2XID Oryzanol | -19.5167 | 50.4965 | .702 | -122.644 | 83.611 |
| | | HF-HC Diet+1XCO | -100.0167 | 50.4965 | .057 | -203.144 | 3.111 |
| HDL | CONTROL | HF-HC Diet | -25.7500* | 8.4857 | .005 | -43.080 | -8.420 |
| | | HF-HC Diet+1XID Oryzanol | -15.9833 | 8.4857 | .069 | -33.313 | 1.347 |
| | | HF-HC Diet+2XID Oryzanol | -14.9333 | 8.4857 | .089 | -32.263 | 2.397 |
| | | HF-HC Diet+1XCO | -24.6667* | 8.4857 | .007 | -41.997 | -7.337 |
| | | HF-HC Diet+1XOryzanol | -25.2833* | 8.4857 | .006 | -42.613 | -7.953 |
| | HF-HC Diet | CONTROL | 25.7500* | 8.4857 | .005 | 8.420 | 43.080 |
| | | HF-HC Diet+1XID Oryzanol | 9.7667 | 8.4857 | .259 | -7.563 | 27.097 |
| | | HF-HC Diet+2XID Oryzanol | 10.8167 | 8.4857 | .212 | -6.513 | 28.147 |
| | | HF-HC Diet+1XCO | 1.0833 | 8.4857 | .899 | -16.247 | 18.413 |
| | | HF-HC Diet+1XOryzanol | .4667 | 8.4857 | .957 | -16.863 | 17.797 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 15.9833 | 8.4857 | .069 | -1.347 | 33.313 |
| | | HF-HC Diet | -9.7667 | 8.4857 | .259 | -27.097 | 7.563 |
| | | HF-HC Diet+2XID Oryzanol | 1.0500 | 8.4857 | .902 | -16.280 | 18.380 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XCO | -8.6833 | 8.4857 | .314 | -26.013 | 8.647 |
| | | HF-HC Diet+1XOryzanol | -9.3000 | 8.4857 | .282 | -26.630 | 8.030 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 14.9333 | 8.4857 | .089 | -2.397 | 32.263 |
| | | HF-HC Diet | -10.8167 | 8.4857 | .212 | -28.147 | 6.513 |
| | | HF-HC Diet+1XID Oryzanol | -1.0500 | 8.4857 | .902 | -18.380 | 16.280 |
| | | HF-HC Diet+1XCO | -9.7333 | 8.4857 | .260 | -27.063 | 7.597 |
| | | HF-HC Diet+1XOryzanol | -10.3500 | 8.4857 | .232 | -27.680 | 6.980 |
| | HF-HC Diet+1XCO | CONTROL | 24.6667* | 8.4857 | .007 | 7.337 | 41.997 |
| | | HF-HC Diet | -1.0833 | 8.4857 | .899 | -18.413 | 16.247 |
| | | HF-HC Diet+1XID Oryzanol | 8.6833 | 8.4857 | .314 | -8.647 | 26.013 |
| | | HF-HC Diet+2XID Oryzanol | 9.7333 | 8.4857 | .260 | -7.597 | 27.063 |
| | | HF-HC Diet+1XOryzanol | -.6167 | 8.4857 | .943 | -17.947 | 16.713 |
| | HF-HC Diet+1XOryzanol | CONTROL | 25.2833* | 8.4857 | .006 | 7.953 | 42.613 |
| | | HF-HC Diet | -.4667 | 8.4857 | .957 | -17.797 | 16.863 |
| | | HF-HC Diet+1XID Oryzanol | 9.3000 | 8.4857 | .282 | -8.030 | 26.630 |
| | | HF-HC Diet+2XID Oryzanol | 10.3500 | 8.4857 | .232 | -6.980 | 27.680 |
| | | HF-HC Diet+1XCO | .6167 | 8.4857 | .943 | -16.713 | 17.947 |
| LDL | CONTROL | HF-HC Diet | -12.4667 | 6.2405 | .055 | -25.212 | .278 |
| | | HF-HC Diet+1XID Oryzanol | -15.0500* | 6.2405 | .022 | -27.795 | -2.305 |
| | | HF-HC Diet+2XID Oryzanol | -11.9500 | 6.2405 | .065 | -24.695 | .795 |
| | | HF-HC Diet+1XCO | -19.2667* | 6.2405 | .004 | -32.012 | -6.522 |
| | | HF-HC Diet+1XOryzanol | -11.6833 | 6.2405 | .071 | -24.428 | 1.062 |
| | HF-HC Diet | CONTROL | 12.4667 | 6.2405 | .055 | -.278 | 25.212 |
| | | HF-HC Diet+1XID Oryzanol | -2.5833 | 6.2405 | .682 | -15.328 | 10.162 |
| | | HF-HC Diet+2XID Oryzanol | .5167 | 6.2405 | .935 | -12.228 | 13.262 |
| | | HF-HC Diet+1XCO | -6.8000 | 6.2405 | .285 | -19.545 | 5.945 |
| | | HF-HC Diet+1XOryzanol | .7833 | 6.2405 | .901 | -11.962 | 13.528 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 15.0500* | 6.2405 | .022 | 2.305 | 27.795 |
| | | HF-HC Diet | 2.5833 | 6.2405 | .682 | -10.162 | 15.328 |
| | | HF-HC Diet+2XID Oryzanol | 3.1000 | 6.2405 | .623 | -9.645 | 15.845 |
| | | HF-HC Diet+1XCO | -4.2167 | 6.2405 | .504 | -16.962 | 8.528 |
| | | HF-HC Diet+1XOryzanol | 3.3667 | 6.2405 | .594 | -9.378 | 16.112 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 11.9500 | 6.2405 | .065 | -.795 | 24.695 |
| | | HF-HC Diet | -.5167 | 6.2405 | .935 | -13.262 | 12.228 |
| | | HF-HC Diet+1XID Oryzanol | -3.1000 | 6.2405 | .623 | -15.845 | 9.645 |
| | | HF-HC Diet+1XCO | -7.3167 | 6.2405 | .250 | -20.062 | 5.428 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XOryzanol | .2667 | 6.2405 | .966 | -12.478 | 13.012 |
| | HF-HC Diet+1XCO | CONTROL | 19.2667* | 6.2405 | .004 | 6.522 | 32.012 |
| | | HF-HC Diet | 6.8000 | 6.2405 | .285 | -5.945 | 19.545 |
| | | HF-HC Diet+1XID Oryzanol | 4.2167 | 6.2405 | .504 | -8.528 | 16.962 |
| | | HF-HC Diet+2XID Oryzanol | 7.3167 | 6.2405 | .250 | -5.428 | 20.062 |
| | | HF-HC Diet+1XOryzanol | 7.5833 | 6.2405 | .234 | -5.162 | 20.328 |
| | HF-HC Diet+1XOryzanol | CONTROL | 11.6833 | 6.2405 | .071 | -1.062 | 24.428 |
| | | HF-HC Diet | -.7833 | 6.2405 | .901 | -13.528 | 11.962 |
| | | HF-HC Diet+1XID Oryzanol | -3.3667 | 6.2405 | .594 | -16.112 | 9.378 |
| | | HF-HC Diet+2XID Oryzanol | -.2667 | 6.2405 | .966 | -13.012 | 12.478 |
| | | HF-HC Diet+1XCO | -7.5833 | 6.2405 | .234 | -20.328 | 5.162 |
| AST | CONTROL | HF-HC Diet | 5.0500 | 10.2680 | .626 | -15.920 | 26.020 |
| | | HF-HC Diet+1XID Oryzanol | 19.0000 | 10.2680 | .074 | -1.970 | 39.970 |
| | | HF-HC Diet+2XID Oryzanol | 4.9333 | 10.2680 | .634 | -16.037 | 25.903 |
| | | HF-HC Diet+1XCO | 10.2333 | 10.2680 | .327 | -10.737 | 31.203 |
| | | HF-HC Diet+1XOryzanol | 11.8833 | 10.2680 | .256 | -9.087 | 32.853 |
| | HF-HC Diet | CONTROL | -5.0500 | 10.2680 | .626 | -26.020 | 15.920 |
| | | HF-HC Diet+1XID Oryzanol | 13.9500 | 10.2680 | .184 | -7.020 | 34.920 |
| | | HF-HC Diet+2XID Oryzanol | -.1167 | 10.2680 | .991 | -21.087 | 20.853 |
| | | HF-HC Diet+1XCO | 5.1833 | 10.2680 | .617 | -15.787 | 26.153 |
| | | HF-HC Diet+1XOryzanol | 6.8333 | 10.2680 | .511 | -14.137 | 27.803 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -19.0000 | 10.2680 | .074 | -39.970 | 1.970 |
| | | HF-HC Diet | -13.9500 | 10.2680 | .184 | -34.920 | 7.020 |
| | | HF-HC Diet+2XID Oryzanol | -14.0667 | 10.2680 | .181 | -35.037 | 6.903 |
| | | HF-HC Diet+1XCO | -8.7667 | 10.2680 | .400 | -29.737 | 12.203 |
| | | HF-HC Diet+1XOryzanol | -7.1167 | 10.2680 | .494 | -28.087 | 13.853 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | -4.9333 | 10.2680 | .634 | -25.903 | 16.037 |
| | | HF-HC Diet | .1167 | 10.2680 | .991 | -20.853 | 21.087 |
| | | HF-HC Diet+1XID Oryzanol | 14.0667 | 10.2680 | .181 | -6.903 | 35.037 |
| | | HF-HC Diet+1XCO | 5.3000 | 10.2680 | .610 | -15.670 | 26.270 |
| | | HF-HC Diet+1XOryzanol | 6.9500 | 10.2680 | .504 | -14.020 | 27.920 |
| | HF-HC Diet+1XCO | CONTROL | -10.2333 | 10.2680 | .327 | -31.203 | 10.737 |
| | | HF-HC Diet | -5.1833 | 10.2680 | .617 | -26.153 | 15.787 |
| | | HF-HC Diet+1XID Oryzanol | 8.7667 | 10.2680 | .400 | -12.203 | 29.737 |
| | | HF-HC Diet+2XID Oryzanol | -5.3000 | 10.2680 | .610 | -26.270 | 15.670 |
| | | HF-HC | 1.6500 | 10.2680 | .873 | -19.320 | 22.620 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Diet+1XOryzanol | | | | | |
| | HF-HC Diet+1XOryzanol | CONTROL | -11.8833 | 10.2680 | .256 | -32.853 | 9.087 |
| | | HF-HC Diet | -6.8333 | 10.2680 | .511 | -27.803 | 14.137 |
| | | HF-HC Diet+1XID Oryzanol | 7.1167 | 10.2680 | .494 | -13.853 | 28.087 |
| | | HF-HC Diet+2XID Oryzanol | -6.9500 | 10.2680 | .504 | -27.920 | 14.020 |
| | | HF-HC Diet+1XCO | -1.6500 | 10.2680 | .873 | -22.620 | 19.320 |
| ALT | CONTROL | HF-HC Diet | -8.1833 | 8.0105 | .315 | -24.543 | 8.176 |
| | | HF-HC Diet+1XID Oryzanol | -.4167 | 8.0105 | .959 | -16.776 | 15.943 |
| | | HF-HC Diet+2XID Oryzanol | -10.6167 | 8.0105 | .195 | -26.976 | 5.743 |
| | | HF-HC Diet+1XCO | -13.5500 | 8.0105 | .101 | -29.910 | 2.810 |
| | | HF-HC Diet+1XOryzanol | -12.7667 | 8.0105 | .121 | -29.126 | 3.593 |
| | HF-HC Diet | CONTROL | 8.1833 | 8.0105 | .315 | -8.176 | 24.543 |
| | | HF-HC Diet+1XID Oryzanol | 7.7667 | 8.0105 | .340 | -8.593 | 24.126 |
| | | HF-HC Diet+2XID Oryzanol | -2.4333 | 8.0105 | .763 | -18.793 | 13.926 |
| | | HF-HC Diet+1XCO | -5.3667 | 8.0105 | .508 | -21.726 | 10.993 |
| | | HF-HC Diet+1XOryzanol | -4.5833 | 8.0105 | .571 | -20.943 | 11.776 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | .4167 | 8.0105 | .959 | -15.943 | 16.776 |
| | | HF-HC Diet | -7.7667 | 8.0105 | .340 | -24.126 | 8.593 |
| | | HF-HC Diet+2XID Oryzanol | -10.2000 | 8.0105 | .213 | -26.560 | 6.160 |
| | | HF-HC Diet+1XCO | -13.1333 | 8.0105 | .112 | -29.493 | 3.226 |
| | | HF-HC Diet+1XOryzanol | -12.3500 | 8.0105 | .134 | -28.710 | 4.010 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 10.6167 | 8.0105 | .195 | -5.743 | 26.976 |
| | | HF-HC Diet | 2.4333 | 8.0105 | .763 | -13.926 | 18.793 |
| | | HF-HC Diet+1XID Oryzanol | 10.2000 | 8.0105 | .213 | -6.160 | 26.560 |
| | | HF-HC Diet+1XCO | -2.9333 | 8.0105 | .717 | -19.293 | 13.426 |
| | | HF-HC Diet+1XOryzanol | -2.1500 | 8.0105 | .790 | -18.510 | 14.210 |
| | HF-HC Diet+1XCO | CONTROL | 13.5500 | 8.0105 | .101 | -2.810 | 29.910 |
| | | HF-HC Diet | 5.3667 | 8.0105 | .508 | -10.993 | 21.726 |
| | | HF-HC Diet+1XID Oryzanol | 13.1333 | 8.0105 | .112 | -3.226 | 29.493 |
| | | HF-HC Diet+2XID Oryzanol | 2.9333 | 8.0105 | .717 | -13.426 | 19.293 |
| | | HF-HC Diet+1XOryzanol | .7833 | 8.0105 | .923 | -15.576 | 17.143 |
| | HF-HC Diet+1XOryzanol | CONTROL | 12.7667 | 8.0105 | .121 | -3.593 | 29.126 |
| | | HF-HC Diet | 4.5833 | 8.0105 | .571 | -11.776 | 20.943 |
| | | HF-HC Diet+1XID Oryzanol | 12.3500 | 8.0105 | .134 | -4.010 | 28.710 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | HF-HC Diet+2XID Oryzanol | 2.1500 | 8.0105 | .790 | -14.210 | 18.510 |
| | HF-HC Diet+1XCO | -.7833 | 8.0105 | .923 | -17.143 | 15.576 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 1st day of Oryzanol exposure

## Day of Exposure = 15th day of Oryzanol exposure

Descriptives[a]

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 72.17 | 5.707 | 2.330 | 66.18 | 78.16 | 65 | 78 |
| | HF-HC Diet | 6 | 72.17 | 5.492 | 2.242 | 66.40 | 77.93 | 65 | 80 |
| | HF-HC Diet+1XID Oryzanol | 6 | 71.33 | 5.502 | 2.246 | 65.56 | 77.11 | 64 | 77 |
| | HF-HC Diet+2XID Oryzanol | 6 | 71.00 | 1.265 | .516 | 69.67 | 72.33 | 69 | 72 |
| | HF-HC Diet+1XCO | 6 | 73.00 | 1.789 | .730 | 71.12 | 74.88 | 70 | 75 |
| | HF-HC Diet+1XOryzanol | 6 | 72.17 | 5.193 | 2.120 | 66.72 | 77.62 | 64 | 80 |
| | Total | 36 | 71.97 | 4.273 | .712 | 70.53 | 73.42 | 64 | 80 |
| CHOL | CONTROL | 6 | 99.017 | 11.4194 | 4.6619 | 87.033 | 111.001 | 85.6 | 117.1 |
| | HF-HC Diet | 6 | 146.317 | 18.4484 | 7.5315 | 126.956 | 165.677 | 117.6 | 166.9 |
| | HF-HC Diet+1XID Oryzanol | 6 | 136.317 | 12.0573 | 4.9224 | 123.663 | 148.970 | 118.1 | 150.0 |
| | HF-HC Diet+2XID Oryzanol | 6 | 123.400 | 16.5969 | 6.7756 | 105.983 | 140.817 | 105.4 | 148.5 |
| | HF-HC Diet+1XCO | 6 | 145.083 | 17.7168 | 7.2329 | 126.491 | 163.676 | 128.4 | 170.3 |
| | HF-HC Diet+1XOryzanol | 6 | 120.483 | 20.5910 | 8.4062 | 98.874 | 142.092 | 104.4 | 158.8 |
| | Total | 36 | 128.436 | 22.5678 | 3.7613 | 120.800 | 136.072 | 85.6 | 170.3 |
| TRI | CONTROL | 6 | 135.450 | 36.7344 | 14.9968 | 96.900 | 174.000 | 109.7 | 209.0 |
| | HF-HC Diet | 6 | 239.450 | 25.5383 | 10.4260 | 212.649 | 266.251 | 203.7 | 275.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 245.117 | 23.7225 | 9.6847 | 220.221 | 270.012 | 198.8 | 264.1 |
| | HF-HC Diet+2XID Oryzanol | 6 | 205.683 | 31.9860 | 13.0582 | 172.116 | 239.251 | 161.6 | 242.6 |
| | HF-HC Diet+1XCO | 6 | 225.983 | 51.2979 | 20.9423 | 172.150 | 279.817 | 170.6 | 285.2 |
| | HF-HC Diet+1XOryzanol | 6 | 187.417 | 22.1500 | 9.0427 | 164.172 | 210.662 | 167.6 | 219.5 |
| | Total | 36 | 206.517 | 48.9212 | 8.1535 | 189.964 | 223.069 | 109.7 | 285.2 |
| HDL | CONTROL | 6 | 82.183 | 8.3094 | 3.3923 | 73.463 | 90.903 | 70.8 | 92.0 |
| | HF-HC Diet | 6 | 119.500 | 16.8447 | 6.8768 | 101.823 | 137.177 | 95.3 | 143.5 |
| | HF-HC Diet+1XID Oryzanol | 6 | 110.800 | 5.3126 | 2.1689 | 105.225 | 116.375 | 103.6 | 119.9 |
| | HF-HC Diet+2XID Oryzanol | 6 | 97.633 | 15.2366 | 6.2203 | 81.643 | 113.623 | 86.2 | 122.6 |
| | HF-HC Diet+1XCO | 6 | 114.700 | 9.4308 | 3.8501 | 104.803 | 124.597 | 103.4 | 125.8 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HF-HC Diet+1XOryzanol | 6 | 93.083 | 17.8849 | 7.3015 | 74.314 | 111.852 | 67.0 | 120.0 |
| | Total | 36 | 102.983 | 17.9623 | 2.9937 | 96.906 | 109.061 | 67.0 | 143.5 |
| LDL | CONTROL | 6 | 18.850 | 5.4618 | 2.2298 | 13.118 | 24.582 | 12.5 | 28.5 |
| | HF-HC Diet | 6 | 24.617 | 6.4595 | 2.6371 | 17.838 | 31.396 | 17.1 | 34.6 |
| | HF-HC Diet+1XID Oryzanol | 6 | 23.533 | 5.8759 | 2.3988 | 17.367 | 29.700 | 14.8 | 32.1 |
| | HF-HC Diet+2XID Oryzanol | 6 | 20.183 | 3.1371 | 1.2807 | 16.891 | 23.476 | 16.4 | 24.5 |
| | HF-HC Diet+1XCO | 6 | 26.217 | 5.8816 | 2.4012 | 20.044 | 32.389 | 17.5 | 34.5 |
| | HF-HC Diet+1XOryzanol | 6 | 18.567 | 7.7709 | 3.1725 | 10.412 | 26.722 | 11.2 | 28.4 |
| | Total | 36 | 21.994 | 6.2483 | 1.0414 | 19.880 | 24.109 | 11.2 | 34.6 |
| AST | CONTROL | 6 | 44.167 | 10.0241 | 4.0923 | 33.647 | 54.686 | 30.4 | 58.0 |
| | HF-HC Diet | 6 | 44.333 | 9.0172 | 3.6813 | 34.870 | 53.796 | 36.0 | 61.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 39.150 | 8.7614 | 3.5768 | 29.955 | 48.345 | 32.5 | 56.6 |
| | HF-HC Diet+2XID Oryzanol | 6 | 39.267 | 15.1621 | 6.1899 | 23.355 | 55.178 | 28.4 | 69.6 |
| | HF-HC Diet+1XCO | 6 | 44.717 | 18.1036 | 7.3908 | 25.718 | 63.715 | 32.3 | 80.1 |
| | HF-HC Diet+1XOryzanol | 6 | 38.717 | 6.7780 | 2.7671 | 31.604 | 45.830 | 30.8 | 47.0 |
| | Total | 36 | 41.725 | 11.4284 | 1.9047 | 37.858 | 45.592 | 28.4 | 80.1 |
| ALT | CONTROL | 6 | 43.233 | 6.5552 | 2.6761 | 36.354 | 50.113 | 33.8 | 52.0 |
| | HF-HC Diet | 6 | 56.917 | 13.0067 | 5.3100 | 43.267 | 70.566 | 42.3 | 79.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 52.217 | 9.0163 | 3.6809 | 42.755 | 61.679 | 42.7 | 63.1 |
| | HF-HC Diet+2XID Oryzanol | 6 | 52.800 | 15.5121 | 6.3328 | 36.521 | 69.079 | 38.7 | 78.6 |
| | HF-HC Diet+1XCO | 6 | 59.800 | 24.7641 | 10.1099 | 33.812 | 85.788 | 31.4 | 102.5 |
| | HF-HC Diet+1XOryzanol | 6 | 50.417 | 4.5937 | 1.8754 | 45.596 | 55.237 | 43.7 | 56.9 |
| | Total | 36 | 52.564 | 13.9602 | 2.3267 | 47.840 | 57.287 | 31.4 | 102.5 |

a. Day of Exposure = 15th day of Oryzanol exposure

Test of Homogeneity of Variances[a]

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | 3.784 | 5 | 30 | .009 |
| CHOL | .636 | 5 | 30 | .674 |
| TRI | 2.428 | 5 | 30 | .058 |
| HDL | 1.792 | 5 | 30 | .145 |
| LDL | 1.100 | 5 | 30 | .381 |
| AST | .786 | 5 | 30 | .568 |
| ALT | 3.108 | 5 | 30 | .022 |

a. Day of Exposure = 15th day of Oryzanol exposure

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| | | Sum of Squares | df | Mean Square | F | Sig. |
| Glucose | Between Groups | 15.139 | 5 | 3.028 | .146 | .980 |
| | Within Groups | 623.833 | 30 | 20.794 | | |
| | Total | 638.972 | 35 | | | |
| CHOL | Between Groups | 9678.361 | 5 | 1935.672 | 7.128 | .000 |
| | Within Groups | 8147.262 | 30 | 271.575 | | |
| | Total | 17825.623 | 35 | | | |
| TRI | Between Groups | 50216.947 | 5 | 10043.389 | 8.981 | .000 |
| | Within Groups | 33547.883 | 30 | 1118.263 | | |
| | Total | 83764.830 | 35 | | | |
| HDL | Between Groups | 6182.720 | 5 | 1236.544 | 7.260 | .000 |
| | Within Groups | 5109.890 | 30 | 170.330 | | |
| | Total | 11292.610 | 35 | | | |
| LDL | Between Groups | 311.932 | 5 | 62.386 | 1.775 | .148 |
| | Within Groups | 1054.527 | 30 | 35.151 | | |
| | Total | 1366.459 | 35 | | | |
| AST | Between Groups | 260.636 | 5 | 52.127 | .363 | .870 |
| | Within Groups | 4310.652 | 30 | 143.688 | | |
| | Total | 4571.288 | 35 | | | |
| ALT | Between Groups | 978.925 | 5 | 195.785 | 1.005 | .432 |
| | Within Groups | 5842.118 | 30 | 194.737 | | |
| | Total | 6821.043 | 35 | | | |

a. Day of Exposure = 15th day of Oryzanol exposure

## Post Hoc Tests

| Multiple Comparisons[a] | | | | | | | |
|---|---|---|---|---|---|---|---|
| LSD | | | | | | | |
| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | | HF-HC Diet+1XID Oryzanol | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | | HF-HC Diet+2XID Oryzanol | 1.167 | 2.633 | .661 | -4.21 | 6.54 |
| | | HF-HC Diet+1XCO | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| | | HF-HC Diet+1XOryzanol | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | HF-HC Diet | CONTROL | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | | HF-HC Diet+1XID Oryzanol | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | | HF-HC Diet+2XID Oryzanol | 1.167 | 2.633 | .661 | -4.21 | 6.54 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XCO | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| | | HF-HC Diet+1XOryzanol | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| | | HF-HC Diet | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| | | HF-HC Diet+2XID Oryzanol | .333 | 2.633 | .900 | -5.04 | 5.71 |
| | | HF-HC Diet+1XCO | -1.667 | 2.633 | .531 | -7.04 | 3.71 |
| | | HF-HC Diet+1XOryzanol | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | -1.167 | 2.633 | .661 | -6.54 | 4.21 |
| | | HF-HC Diet | -1.167 | 2.633 | .661 | -6.54 | 4.21 |
| | | HF-HC Diet+1XID Oryzanol | -.333 | 2.633 | .900 | -5.71 | 5.04 |
| | | HF-HC Diet+1XCO | -2.000 | 2.633 | .453 | -7.38 | 3.38 |
| | | HF-HC Diet+1XOryzanol | -1.167 | 2.633 | .661 | -6.54 | 4.21 |
| | HF-HC Diet+1XCO | CONTROL | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | | HF-HC Diet | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | | HF-HC Diet+1XID Oryzanol | 1.667 | 2.633 | .531 | -3.71 | 7.04 |
| | | HF-HC Diet+2XID Oryzanol | 2.000 | 2.633 | .453 | -3.38 | 7.38 |
| | | HF-HC Diet+1XOryzanol | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | HF-HC Diet+1XOryzanol | CONTROL | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | | HF-HC Diet | 0.000 | 2.633 | 1.000 | -5.38 | 5.38 |
| | | HF-HC Diet+1XID Oryzanol | .833 | 2.633 | .754 | -4.54 | 6.21 |
| | | HF-HC Diet+2XID Oryzanol | 1.167 | 2.633 | .661 | -4.21 | 6.54 |
| | | HF-HC Diet+1XCO | -.833 | 2.633 | .754 | -6.21 | 4.54 |
| CHOL | CONTROL | HF-HC Diet | -47.3000* | 9.5145 | .000 | -66.731 | -27.869 |
| | | HF-HC Diet+1XID Oryzanol | -37.3000* | 9.5145 | .000 | -56.731 | -17.869 |
| | | HF-HC Diet+2XID Oryzanol | -24.3833* | 9.5145 | .016 | -43.814 | -4.952 |
| | | HF-HC Diet+1XCO | -46.0667* | 9.5145 | .000 | -65.498 | -26.636 |
| | | HF-HC Diet+1XOryzanol | -21.4667* | 9.5145 | .032 | -40.898 | -2.036 |
| | HF-HC Diet | CONTROL | 47.3000* | 9.5145 | .000 | 27.869 | 66.731 |
| | | HF-HC Diet+1XID Oryzanol | 10.0000 | 9.5145 | .302 | -9.431 | 29.431 |
| | | HF-HC Diet+2XID Oryzanol | 22.9167* | 9.5145 | .022 | 3.486 | 42.348 |
| | | HF-HC Diet+1XCO | 1.2333 | 9.5145 | .898 | -18.198 | 20.664 |
| | | HF-HC Diet+1XOryzanol | 25.8333* | 9.5145 | .011 | 6.402 | 45.264 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 37.3000* | 9.5145 | .000 | 17.869 | 56.731 |
| | | HF-HC Diet | -10.0000 | 9.5145 | .302 | -29.431 | 9.431 |
| | | HF-HC Diet+2XID Oryzanol | 12.9167 | 9.5145 | .185 | -6.514 | 32.348 |
| | | HF-HC Diet+1XCO | -8.7667 | 9.5145 | .364 | -28.198 | 10.664 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XOryzanol | 15.8333 | 9.5145 | .106 | -3.598 | 35.264 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 24.3833* | 9.5145 | .016 | 4.952 | 43.814 |
| | | HF-HC Diet | -22.9167* | 9.5145 | .022 | -42.348 | -3.486 |
| | | HF-HC Diet+1XID Oryzanol | -12.9167 | 9.5145 | .185 | -32.348 | 6.514 |
| | | HF-HC Diet+1XCO | -21.6833* | 9.5145 | .030 | -41.114 | -2.252 |
| | | HF-HC Diet+1XOryzanol | 2.9167 | 9.5145 | .761 | -16.514 | 22.348 |
| | HF-HC Diet+1XCO | CONTROL | 46.0667* | 9.5145 | .000 | 26.636 | 65.498 |
| | | HF-HC Diet | -1.2333 | 9.5145 | .898 | -20.664 | 18.198 |
| | | HF-HC Diet+1XID Oryzanol | 8.7667 | 9.5145 | .364 | -10.664 | 28.198 |
| | | HF-HC Diet+2XID Oryzanol | 21.6833* | 9.5145 | .030 | 2.252 | 41.114 |
| | | HF-HC Diet+1XOryzanol | 24.6000* | 9.5145 | .015 | 5.169 | 44.031 |
| | HF-HC Diet+1XOryzanol | CONTROL | 21.4667* | 9.5145 | .032 | 2.036 | 40.898 |
| | | HF-HC Diet | -25.8333* | 9.5145 | .011 | -45.264 | -6.402 |
| | | HF-HC Diet+1XID Oryzanol | -15.8333 | 9.5145 | .106 | -35.264 | 3.598 |
| | | HF-HC Diet+2XID Oryzanol | -2.9167 | 9.5145 | .761 | -22.348 | 16.514 |
| | | HF-HC Diet+1XCO | -24.6000* | 9.5145 | .015 | -44.031 | -5.169 |
| TRI | CONTROL | HF-HC Diet | -104.0000* | 19.3068 | .000 | -143.430 | -64.570 |
| | | HF-HC Diet+1XID Oryzanol | -109.6667* | 19.3068 | .000 | -149.097 | -70.237 |
| | | HF-HC Diet+2XID Oryzanol | -70.2333* | 19.3068 | .001 | -109.663 | -30.803 |
| | | HF-HC Diet+1XCO | -90.5333* | 19.3068 | .000 | -129.963 | -51.103 |
| | | HF-HC Diet+1XOryzanol | -51.9667* | 19.3068 | .012 | -91.397 | -12.537 |
| | HF-HC Diet | CONTROL | 104.0000* | 19.3068 | .000 | 64.570 | 143.430 |
| | | HF-HC Diet+1XID Oryzanol | -5.6667 | 19.3068 | .771 | -45.097 | 33.763 |
| | | HF-HC Diet+2XID Oryzanol | 33.7667 | 19.3068 | .091 | -5.663 | 73.197 |
| | | HF-HC Diet+1XCO | 13.4667 | 19.3068 | .491 | -25.963 | 52.897 |
| | | HF-HC Diet+1XOryzanol | 52.0333* | 19.3068 | .011 | 12.603 | 91.463 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 109.6667* | 19.3068 | .000 | 70.237 | 149.097 |
| | | HF-HC Diet | 5.6667 | 19.3068 | .771 | -33.763 | 45.097 |
| | | HF-HC Diet+2XID Oryzanol | 39.4333* | 19.3068 | .050 | .003 | 78.863 |
| | | HF-HC Diet+1XCO | 19.1333 | 19.3068 | .330 | -20.297 | 58.563 |
| | | HF-HC Diet+1XOryzanol | 57.7000* | 19.3068 | .006 | 18.270 | 97.130 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 70.2333* | 19.3068 | .001 | 30.803 | 109.663 |
| | | HF-HC Diet | -33.7667 | 19.3068 | .091 | -73.197 | 5.663 |
| | | HF-HC Diet+1XID Oryzanol | -39.4333* | 19.3068 | .050 | -78.863 | -.003 |
| | | HF-HC Diet+1XCO | -20.3000 | 19.3068 | .301 | -59.730 | 19.130 |
| | | HF-HC Diet+1XOryzanol | 18.2667 | 19.3068 | .352 | -21.163 | 57.697 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HF-HC Diet+1XCO | CONTROL | 90.5333* | 19.3068 | .000 | 51.103 | 129.963 |
| | | HF-HC Diet | -13.4667 | 19.3068 | .491 | -52.897 | 25.963 |
| | | HF-HC Diet+1XID Oryzanol | -19.1333 | 19.3068 | .330 | -58.563 | 20.297 |
| | | HF-HC Diet+2XID Oryzanol | 20.3000 | 19.3068 | .301 | -19.130 | 59.730 |
| | | HF-HC Diet+1XOryzanol | 38.5667 | 19.3068 | .055 | -.863 | 77.997 |
| | HF-HC Diet+1XOryzanol | CONTROL | 51.9667* | 19.3068 | .012 | 12.537 | 91.397 |
| | | HF-HC Diet | -52.0333* | 19.3068 | .011 | -91.463 | -12.603 |
| | | HF-HC Diet+1XID Oryzanol | -57.7000* | 19.3068 | .006 | -97.130 | -18.270 |
| | | HF-HC Diet+2XID Oryzanol | -18.2667 | 19.3068 | .352 | -57.697 | 21.163 |
| | | HF-HC Diet+1XCO | -38.5667 | 19.3068 | .055 | -77.997 | .863 |
| HDL | CONTROL | HF-HC Diet | -37.3167* | 7.5350 | .000 | -52.705 | -21.928 |
| | | HF-HC Diet+1XID Oryzanol | -28.6167* | 7.5350 | .001 | -44.005 | -13.228 |
| | | HF-HC Diet+2XID Oryzanol | -15.4500* | 7.5350 | .049 | -30.839 | -.061 |
| | | HF-HC Diet+1XCO | -32.5167* | 7.5350 | .000 | -47.905 | -17.128 |
| | | HF-HC Diet+1XOryzanol | -10.9000 | 7.5350 | .158 | -26.289 | 4.489 |
| | HF-HC Diet | CONTROL | 37.3167* | 7.5350 | .000 | 21.928 | 52.705 |
| | | HF-HC Diet+1XID Oryzanol | 8.7000 | 7.5350 | .257 | -6.689 | 24.089 |
| | | HF-HC Diet+2XID Oryzanol | 21.8667* | 7.5350 | .007 | 6.478 | 37.255 |
| | | HF-HC Diet+1XCO | 4.8000 | 7.5350 | .529 | -10.589 | 20.189 |
| | | HF-HC Diet+1XOryzanol | 26.4167* | 7.5350 | .001 | 11.028 | 41.805 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 28.6167* | 7.5350 | .001 | 13.228 | 44.005 |
| | | HF-HC Diet | -8.7000 | 7.5350 | .257 | -24.089 | 6.689 |
| | | HF-HC Diet+2XID Oryzanol | 13.1667 | 7.5350 | .091 | -2.222 | 28.555 |
| | | HF-HC Diet+1XCO | -3.9000 | 7.5350 | .609 | -19.289 | 11.489 |
| | | HF-HC Diet+1XOryzanol | 17.7167* | 7.5350 | .025 | 2.328 | 33.105 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 15.4500* | 7.5350 | .049 | .061 | 30.839 |
| | | HF-HC Diet | -21.8667* | 7.5350 | .007 | -37.255 | -6.478 |
| | | HF-HC Diet+1XID Oryzanol | -13.1667 | 7.5350 | .091 | -28.555 | 2.222 |
| | | HF-HC Diet+1XCO | -17.0667* | 7.5350 | .031 | -32.455 | -1.678 |
| | | HF-HC Diet+1XOryzanol | 4.5500 | 7.5350 | .550 | -10.839 | 19.939 |
| | HF-HC Diet+1XCO | CONTROL | 32.5167* | 7.5350 | .000 | 17.128 | 47.905 |
| | | HF-HC Diet | -4.8000 | 7.5350 | .529 | -20.189 | 10.589 |
| | | HF-HC Diet+1XID Oryzanol | 3.9000 | 7.5350 | .609 | -11.489 | 19.289 |
| | | HF-HC Diet+2XID Oryzanol | 17.0667* | 7.5350 | .031 | 1.678 | 32.455 |
| | | HF-HC Diet+1XOryzanol | 21.6167* | 7.5350 | .007 | 6.228 | 37.005 |
| | HF-HC | CONTROL | 10.9000 | 7.5350 | .158 | -4.489 | 26.289 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Diet+1XOryzanol | HF-HC Diet | -26.4167* | 7.5350 | .001 | -41.805 | -11.028 |
| | | HF-HC Diet+1XID Oryzanol | -17.7167* | 7.5350 | .025 | -33.105 | -2.328 |
| | | HF-HC Diet+2XID Oryzanol | -4.5500 | 7.5350 | .550 | -19.939 | 10.839 |
| | | HF-HC Diet+1XCO | -21.6167* | 7.5350 | .007 | -37.005 | -6.228 |
| LDL | CONTROL | HF-HC Diet | -5.7667 | 3.4230 | .102 | -12.757 | 1.224 |
| | | HF-HC Diet+1XID Oryzanol | -4.6833 | 3.4230 | .181 | -11.674 | 2.307 |
| | | HF-HC Diet+2XID Oryzanol | -1.3333 | 3.4230 | .700 | -8.324 | 5.657 |
| | | HF-HC Diet+1XCO | -7.3667* | 3.4230 | .040 | -14.357 | -.376 |
| | | HF-HC Diet+1XOryzanol | .2833 | 3.4230 | .935 | -6.707 | 7.274 |
| | HF-HC Diet | CONTROL | 5.7667 | 3.4230 | .102 | -1.224 | 12.757 |
| | | HF-HC Diet+1XID Oryzanol | 1.0833 | 3.4230 | .754 | -5.907 | 8.074 |
| | | HF-HC Diet+2XID Oryzanol | 4.4333 | 3.4230 | .205 | -2.557 | 11.424 |
| | | HF-HC Diet+1XCO | -1.6000 | 3.4230 | .644 | -8.591 | 5.391 |
| | | HF-HC Diet+1XOryzanol | 6.0500 | 3.4230 | .087 | -.941 | 13.041 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 4.6833 | 3.4230 | .181 | -2.307 | 11.674 |
| | | HF-HC Diet | -1.0833 | 3.4230 | .754 | -8.074 | 5.907 |
| | | HF-HC Diet+2XID Oryzanol | 3.3500 | 3.4230 | .336 | -3.641 | 10.341 |
| | | HF-HC Diet+1XCO | -2.6833 | 3.4230 | .439 | -9.674 | 4.307 |
| | | HF-HC Diet+1XOryzanol | 4.9667 | 3.4230 | .157 | -2.024 | 11.957 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 1.3333 | 3.4230 | .700 | -5.657 | 8.324 |
| | | HF-HC Diet | -4.4333 | 3.4230 | .205 | -11.424 | 2.557 |
| | | HF-HC Diet+1XID Oryzanol | -3.3500 | 3.4230 | .336 | -10.341 | 3.641 |
| | | HF-HC Diet+1XCO | -6.0333 | 3.4230 | .088 | -13.024 | .957 |
| | | HF-HC Diet+1XOryzanol | 1.6167 | 3.4230 | .640 | -5.374 | 8.607 |
| | HF-HC Diet+1XCO | CONTROL | 7.3667* | 3.4230 | .040 | .376 | 14.357 |
| | | HF-HC Diet | 1.6000 | 3.4230 | .644 | -5.391 | 8.591 |
| | | HF-HC Diet+1XID Oryzanol | 2.6833 | 3.4230 | .439 | -4.307 | 9.674 |
| | | HF-HC Diet+2XID Oryzanol | 6.0333 | 3.4230 | .088 | -.957 | 13.024 |
| | | HF-HC Diet+1XOryzanol | 7.6500* | 3.4230 | .033 | .659 | 14.641 |
| | HF-HC Diet+1XOryzanol | CONTROL | -.2833 | 3.4230 | .935 | -7.274 | 6.707 |
| | | HF-HC Diet | -6.0500 | 3.4230 | .087 | -13.041 | .941 |
| | | HF-HC Diet+1XID Oryzanol | -4.9667 | 3.4230 | .157 | -11.957 | 2.024 |
| | | HF-HC Diet+2XID Oryzanol | -1.6167 | 3.4230 | .640 | -8.607 | 5.374 |
| | | HF-HC Diet+1XCO | -7.6500* | 3.4230 | .033 | -14.641 | -.659 |
| AST | CONTROL | HF-HC Diet | -.1667 | 6.9207 | .981 | -14.301 | 13.967 |
| | | HF-HC Diet+1XID Oryzanol | 5.0167 | 6.9207 | .474 | -9.117 | 19.151 |

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|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+2XID Oryzanol | 4.9000 | 6.9207 | .484 | -9.234 | 19.034 |
| | | HF-HC Diet+1XCO | -.5500 | 6.9207 | .937 | -14.684 | 13.584 |
| | | HF-HC Diet+1XOryzanol | 5.4500 | 6.9207 | .437 | -8.684 | 19.584 |
| | HF-HC Diet | CONTROL | .1667 | 6.9207 | .981 | -13.967 | 14.301 |
| | | HF-HC Diet+1XID Oryzanol | 5.1833 | 6.9207 | .460 | -8.951 | 19.317 |
| | | HF-HC Diet+2XID Oryzanol | 5.0667 | 6.9207 | .470 | -9.067 | 19.201 |
| | | HF-HC Diet+1XCO | -.3833 | 6.9207 | .956 | -14.517 | 13.751 |
| | | HF-HC Diet+1XOryzanol | 5.6167 | 6.9207 | .423 | -8.517 | 19.751 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -5.0167 | 6.9207 | .474 | -19.151 | 9.117 |
| | | HF-HC Diet | -5.1833 | 6.9207 | .460 | -19.317 | 8.951 |
| | | HF-HC Diet+2XID Oryzanol | -.1167 | 6.9207 | .987 | -14.251 | 14.017 |
| | | HF-HC Diet+1XCO | -5.5667 | 6.9207 | .428 | -19.701 | 8.567 |
| | | HF-HC Diet+1XOryzanol | .4333 | 6.9207 | .950 | -13.701 | 14.567 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | -4.9000 | 6.9207 | .484 | -19.034 | 9.234 |
| | | HF-HC Diet | -5.0667 | 6.9207 | .470 | -19.201 | 9.067 |
| | | HF-HC Diet+1XID Oryzanol | .1167 | 6.9207 | .987 | -14.017 | 14.251 |
| | | HF-HC Diet+1XCO | -5.4500 | 6.9207 | .437 | -19.584 | 8.684 |
| | | HF-HC Diet+1XOryzanol | .5500 | 6.9207 | .937 | -13.584 | 14.684 |
| | HF-HC Diet+1XCO | CONTROL | .5500 | 6.9207 | .937 | -13.584 | 14.684 |
| | | HF-HC Diet | .3833 | 6.9207 | .956 | -13.751 | 14.517 |
| | | HF-HC Diet+1XID Oryzanol | 5.5667 | 6.9207 | .428 | -8.567 | 19.701 |
| | | HF-HC Diet+2XID Oryzanol | 5.4500 | 6.9207 | .437 | -8.684 | 19.584 |
| | | HF-HC Diet+1XOryzanol | 6.0000 | 6.9207 | .393 | -8.134 | 20.134 |
| | HF-HC Diet+1XOryzanol | CONTROL | -5.4500 | 6.9207 | .437 | -19.584 | 8.684 |
| | | HF-HC Diet | -5.6167 | 6.9207 | .423 | -19.751 | 8.517 |
| | | HF-HC Diet+1XID Oryzanol | -.4333 | 6.9207 | .950 | -14.567 | 13.701 |
| | | HF-HC Diet+2XID Oryzanol | -.5500 | 6.9207 | .937 | -14.684 | 13.584 |
| | | HF-HC Diet+1XCO | -6.0000 | 6.9207 | .393 | -20.134 | 8.134 |
| ALT | CONTROL | HF-HC Diet | -13.6833 | 8.0568 | .100 | -30.138 | 2.771 |
| | | HF-HC Diet+1XID Oryzanol | -8.9833 | 8.0568 | .274 | -25.438 | 7.471 |
| | | HF-HC Diet+2XID Oryzanol | -9.5667 | 8.0568 | .244 | -26.021 | 6.888 |
| | | HF-HC Diet+1XCO | -16.5667* | 8.0568 | .049 | -33.021 | -.112 |
| | | HF-HC Diet+1XOryzanol | -7.1833 | 8.0568 | .380 | -23.638 | 9.271 |
| | HF-HC Diet | CONTROL | 13.6833 | 8.0568 | .100 | -2.771 | 30.138 |
| | | HF-HC Diet+1XID Oryzanol | 4.7000 | 8.0568 | .564 | -11.754 | 21.154 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+2XID Oryzanol | 4.1167 | 8.0568 | .613 | -12.338 | 20.571 |
| | | HF-HC Diet+1XCO | -2.8833 | 8.0568 | .723 | -19.338 | 13.571 |
| | | HF-HC Diet+1XOryzanol | 6.5000 | 8.0568 | .426 | -9.954 | 22.954 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 8.9833 | 8.0568 | .274 | -7.471 | 25.438 |
| | | HF-HC Diet | -4.7000 | 8.0568 | .564 | -21.154 | 11.754 |
| | | HF-HC Diet+2XID Oryzanol | -.5833 | 8.0568 | .943 | -17.038 | 15.871 |
| | | HF-HC Diet+1XCO | -7.5833 | 8.0568 | .354 | -24.038 | 8.871 |
| | | HF-HC Diet+1XOryzanol | 1.8000 | 8.0568 | .825 | -14.654 | 18.254 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 9.5667 | 8.0568 | .244 | -6.888 | 26.021 |
| | | HF-HC Diet | -4.1167 | 8.0568 | .613 | -20.571 | 12.338 |
| | | HF-HC Diet+1XID Oryzanol | .5833 | 8.0568 | .943 | -15.871 | 17.038 |
| | | HF-HC Diet+1XCO | -7.0000 | 8.0568 | .392 | -23.454 | 9.454 |
| | | HF-HC Diet+1XOryzanol | 2.3833 | 8.0568 | .769 | -14.071 | 18.838 |
| | HF-HC Diet+1XCO | CONTROL | 16.5667* | 8.0568 | .049 | .112 | 33.021 |
| | | HF-HC Diet | 2.8833 | 8.0568 | .723 | -13.571 | 19.338 |
| | | HF-HC Diet+1XID Oryzanol | 7.5833 | 8.0568 | .354 | -8.871 | 24.038 |
| | | HF-HC Diet+2XID Oryzanol | 7.0000 | 8.0568 | .392 | -9.454 | 23.454 |
| | | HF-HC Diet+1XOryzanol | 9.3833 | 8.0568 | .253 | -7.071 | 25.838 |
| | HF-HC Diet+1XOryzanol | CONTROL | 7.1833 | 8.0568 | .380 | -9.271 | 23.638 |
| | | HF-HC Diet | -6.5000 | 8.0568 | .426 | -22.954 | 9.954 |
| | | HF-HC Diet+1XID Oryzanol | -1.8000 | 8.0568 | .825 | -18.254 | 14.654 |
| | | HF-HC Diet+2XID Oryzanol | -2.3833 | 8.0568 | .769 | -18.838 | 14.071 |
| | | HF-HC Diet+1XCO | -9.3833 | 8.0568 | .253 | -25.838 | 7.071 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 15th day of Oryzanol exposure

## Day of Exposure = 15th day of Oryzanol exposure
## Kruskal-Wallis Test

| Ranks[a] | | | |
|---|---|---|---|
| Test group | | N | Mean Rank |
| Glucose | CONTROL | 6 | 20.08 |
| | HF-HC Diet | 6 | 18.58 |
| | HF-HC Diet+1XID Oryzanol | 6 | 18.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 14.75 |
| | HF-HC Diet+1XCO | 6 | 21.00 |

| | | | |
|---|---|---|---|
| | HF-HC Diet+1XOryzanol | 6 | 18.58 |
| | Total | 36 | |
| ALT | CONTROL | 6 | 10.42 |
| | HF-HC Diet | 6 | 22.50 |
| | HF-HC Diet+1XID Oryzanol | 6 | 19.83 |
| | HF-HC Diet+2XID Oryzanol | 6 | 17.25 |
| | HF-HC Diet+1XCO | 6 | 21.50 |
| | HF-HC Diet+1XOryzanol | 6 | 19.50 |
| | Total | 36 | |

a. Day of Exposure = 15th day of Oryzanol exposure

Test Statistics[a,b,c]

| | Glucose | ALT |
|---|---|---|
| Chi-Square | 1.256 | 5.119 |
| df | 5 | 5 |
| Asymp. Sig. | .939 | .402 |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Kruskal Wallis Test
c. Grouping Variable: Test group

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

Ranks[a]

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 6.75 | 40.50 |
| | HF-HC Diet | 6 | 6.25 | 37.50 |
| | Total | 12 | | |
| ALT | CONTROL | 6 | 4.67 | 28.00 |
| | HF-HC Diet | 6 | 8.33 | 50.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

Test Statistics[a,b]

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 16.500 | 7.000 |
| Wilcoxon W | 37.500 | 28.000 |
| Z | -.241 | -1.761 |
| Asymp. Sig. (2-tailed) | .810 | .078 |
| Exact Sig. [2*(1-tailed Sig.)] | .818[c] | .093[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 7.08 | 42.50 |
| | HF-HC Diet+1XID Oryzanol | 6 | 5.92 | 35.50 |
| | Total | 12 | | |
| ALT | CONTROL | 6 | 4.67 | 28.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 8.33 | 50.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 14.500 | 7.000 |
| Wilcoxon W | 35.500 | 28.000 |
| Z | -.563 | -1.761 |
| Asymp. Sig. (2-tailed) | .573 | .078 |
| Exact Sig. [2*(1-tailed Sig.)] | .589[c] | .093[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 6.92 | 41.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.08 | 36.50 |
| | Total | 12 | | |
| ALT | CONTROL | 6 | 5.58 | 33.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 7.42 | 44.50 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 15.500 | 12.500 |
| Wilcoxon W | 36.500 | 33.500 |
| Z | -.404 | -.882 |
| Asymp. Sig. (2-tailed) | .686 | .378 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[c] | .394[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XCO | 6 | 6.33 | 38.00 |
| | Total | 12 | | |
| ALT | CONTROL | 6 | 5.00 | 30.00 |
| | HF-HC Diet+1XCO | 6 | 8.00 | 48.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 17.000 | 9.000 |
| Wilcoxon W | 38.000 | 30.000 |
| Z | -.160 | -1.441 |
| Asymp. Sig. (2-tailed) | .873 | .150 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | .180[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.33 | 38.00 |
| | Total | 12 | | |

| | | | | |
|---|---|---|---|---|
| ALT | CONTROL | 6 | 4.50 | 27.00 |
| | HF-HC Diet+1XOryzanol | 6 | 8.50 | 51.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

| Test Statistics[a,b] | | |
|---|---|---|
| | Glucose | ALT |
| Mann-Whitney U | 17.000 | 6.000 |
| Wilcoxon W | 38.000 | 27.000 |
| Z | -.161 | -1.922 |
| Asymp. Sig. (2-tailed) | .872 | .055 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | .065[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

| Ranks[a] | | | | |
|---|---|---|---|---|
| Test group | | N | Mean Rank | Sum of Ranks |
| Glucose | HF-HC Diet | 6 | 6.58 | 39.50 |
| | HF-HC Diet+1XID Oryzanol | 6 | 6.42 | 38.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet | 6 | 6.83 | 41.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 6.17 | 37.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

| Test Statistics[a,b] | | |
|---|---|---|
| | Glucose | ALT |
| Mann-Whitney U | 17.500 | 16.000 |
| Wilcoxon W | 38.500 | 37.000 |
| Z | -.081 | -.320 |
| Asymp. Sig. (2-tailed) | .936 | .749 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | .818[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure

## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 6.75 | 40.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.25 | 37.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet | 6 | 7.33 | 44.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.67 | 34.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 16.500 | 13.000 |
| Wilcoxon W | 37.500 | 34.000 |
| Z | -.243 | -.801 |
| Asymp. Sig. (2-tailed) | .808 | .423 |
| Exact Sig. [2*(1-tailed Sig.)] | .818[c] | .485[c] |

a. Day of Exposure = 15th day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 6.42 | 38.50 |
| | HF-HC Diet+1XCO | 6 | 6.58 | 39.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XCO | 6 | 6.33 | 38.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 17.500 | 17.000 |
| Wilcoxon W | 38.500 | 38.000 |
| Z | -.081 | -.160 |
| Asymp. Sig. (2-tailed) | .936 | .873 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | .937[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 6.58 | 39.50 |
| | HF-HC Diet+1XOryzanol | 6 | 6.42 | 38.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet | 6 | 7.33 | 44.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.67 | 34.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 17.500 | 13.000 |
| Wilcoxon W | 38.500 | 34.000 |
| Z | -.080 | -.801 |
| Asymp. Sig. (2-tailed) | .936 | .423 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | .485[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 6.75 | 40.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.25 | 37.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet+1XID Oryzanol | 6 | 6.83 | 41.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.17 | 37.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|

| | | |
|---|---|---|
| Mann-Whitney U | 16.500 | 16.000 |
| Wilcoxon W | 37.500 | 37.000 |
| Z | -.242 | -.320 |
| Asymp. Sig. (2-tailed) | .809 | .749 |
| Exact Sig. [2*(1-tailed Sig.)] | .818[c] | .818[c] |

a. Day of Exposure = 15th day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 6.50 | 39.00 |
| | HF-HC Diet+1XCO | 6 | 6.50 | 39.00 |
| | Total | 12 | | |
| ALT | HF-HC Diet+1XID Oryzanol | 6 | 6.00 | 36.00 |
| | HF-HC Diet+1XCO | 6 | 7.00 | 42.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 18.000 | 15.000 |
| Wilcoxon W | 39.000 | 36.000 |
| Z | 0.000 | -.480 |
| Asymp. Sig. (2-tailed) | 1.000 | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | 1.000[c] | .699[c] |

a. Day of Exposure = 15th day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 6.42 | 38.50 |
| | HF-HC Diet+1XOryzanol | 6 | 6.58 | 39.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet+1XID Oryzanol | 6 | 6.50 | 39.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.50 | 39.00 |

| | | | | |
|---|---|---|---|---|
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 17.500 | 18.000 |
| Wilcoxon W | 38.500 | 39.000 |
| Z | -.080 | 0.000 |
| Asymp. Sig. (2-tailed) | .936 | 1.000 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] | 1.000[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+2XID Oryzanol | 6 | 4.50 | 27.00 |
| | HF-HC Diet+1XCO | 6 | 8.50 | 51.00 |
| | Total | 12 | | |
| ALT | HF-HC Diet+2XID Oryzanol | 6 | 5.83 | 35.00 |
| | HF-HC Diet+1XCO | 6 | 7.17 | 43.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 6.000 | 14.000 |
| Wilcoxon W | 27.000 | 35.000 |
| Z | -1.963 | -.641 |
| Asymp. Sig. (2-tailed) | .050 | .522 |
| Exact Sig. [2*(1-tailed Sig.)] | .065[c] | .589[c] |

a. Day of Exposure = 15th day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+2XID Oryzanol | 6 | 5.67 | 34.00 |
| | HF-HC Diet+1XOryzanol | 6 | 7.33 | 44.00 |
| | Total | 12 | | |
| ALT | HF-HC Diet+2XID Oryzanol | 6 | 6.17 | 37.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.83 | 41.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 13.000 | 16.000 |
| Wilcoxon W | 34.000 | 37.000 |
| Z | -.812 | -.320 |
| Asymp. Sig. (2-tailed) | .417 | .749 |
| Exact Sig. [2*(1-tailed Sig.)] | .485[c] | .818[c] |

a. Day of Exposure = 15th day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 15th day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XCO | 6 | 7.08 | 42.50 |
| | HF-HC Diet+1XOryzanol | 6 | 5.92 | 35.50 |
| | Total | 12 | | |
| ALT | HF-HC Diet+1XCO | 6 | 7.00 | 42.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.00 | 36.00 |
| | Total | 12 | | |

a. Day of Exposure = 15th day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | ALT |
|---|---|---|
| Mann-Whitney U | 14.500 | 15.000 |
| Wilcoxon W | 35.500 | 36.000 |
| Z | -.566 | -.480 |
| Asymp. Sig. (2-tailed) | .571 | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .589[c] | .699[c] |

a. Day of Exposure = 15th day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure

**Descriptives[a]**

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 64.17 | 3.656 | 1.493 | 60.33 | 68.00 | 61 | 71 |
| | HF-HC Diet | 6 | 64.33 | 1.966 | .803 | 62.27 | 66.40 | 61 | 66 |
| | HF-HC Diet+1XID Oryzanol | 6 | 75.00 | 9.143 | 3.733 | 65.40 | 84.60 | 66 | 89 |
| | HF-HC Diet+2XID Oryzanol | 6 | 66.83 | 3.312 | 1.352 | 63.36 | 70.31 | 64 | 71 |
| | HF-HC Diet+1XCO | 6 | 71.00 | 4.980 | 2.033 | 65.77 | 76.23 | 65 | 78 |
| | HF-HC Diet+1XOryzanol | 6 | 77.17 | 18.894 | 7.713 | 57.34 | 96.99 | 62 | 114 |
| | Total | 36 | 69.75 | 9.837 | 1.639 | 66.42 | 73.08 | 61 | 114 |
| CHOL | CONTROL | 6 | 93.717 | 9.0663 | 3.7013 | 84.202 | 103.231 | 84.9 | 110.0 |
| | HF-HC Diet | 6 | 132.617 | 21.0118 | 8.5780 | 110.566 | 154.667 | 103.6 | 151.8 |
| | HF-HC Diet+1XID Oryzanol | 6 | 126.000 | 12.4238 | 5.0720 | 112.962 | 139.038 | 105.5 | 141.3 |
| | HF-HC Diet+2XID Oryzanol | 6 | 122.717 | 21.8413 | 8.9167 | 99.796 | 145.638 | 96.3 | 148.5 |
| | HF-HC Diet+1XCO | 6 | 132.183 | 8.3420 | 3.4056 | 123.429 | 140.938 | 121.3 | 144.9 |
| | HF-HC Diet+1XOryzanol | 6 | 119.100 | 21.1470 | 8.6332 | 96.908 | 141.292 | 102.4 | 160.9 |
| | Total | 36 | 121.056 | 20.4065 | 3.4011 | 114.151 | 127.960 | 84.9 | 160.9 |
| TRI | CONTROL | 6 | 139.433 | 27.1781 | 11.0954 | 110.912 | 167.955 | 109.9 | 189.3 |
| | HF-HC Diet | 6 | 264.000 | 57.8402 | 23.6132 | 203.300 | 324.700 | 192.1 | 322.8 |
| | HF-HC Diet+1XID Oryzanol | 6 | 237.300 | 38.3767 | 15.6672 | 197.026 | 277.574 | 191.3 | 302.4 |
| | HF-HC Diet+2XID Oryzanol | 6 | 215.933 | 51.3006 | 20.9434 | 162.097 | 269.770 | 139.9 | 275.0 |
| | HF-HC Diet+1XCO | 6 | 234.733 | 38.6465 | 15.7774 | 194.176 | 275.290 | 183.2 | 291.3 |
| | HF-HC Diet+1XOryzanol | 6 | 211.700 | 33.2790 | 13.5861 | 176.776 | 246.624 | 168.1 | 262.6 |
| | Total | 36 | 217.183 | 55.5069 | 9.2511 | 198.403 | 235.964 | 109.9 | 322.8 |
| HDL | CONTROL | 6 | 76.383 | 7.1301 | 2.9108 | 68.901 | 83.866 | 68.3 | 85.4 |
| | HF-HC Diet | 6 | 105.683 | 19.4328 | 7.9334 | 85.290 | 126.077 | 77.7 | 121.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 101.400 | 8.6163 | 3.5176 | 92.358 | 110.442 | 87.6 | 110.9 |
| | HF-HC Diet+2XID Oryzanol | 6 | 96.900 | 15.6829 | 6.4025 | 80.442 | 113.358 | 82.7 | 122.3 |
| | HF-HC Diet+1XCO | 6 | 106.800 | 6.0689 | 2.4776 | 100.431 | 113.169 | 97.4 | 116.3 |
| | HF-HC Diet+1XOryzanol | 6 | 95.833 | 17.9078 | 7.3108 | 77.040 | 114.626 | 79.2 | 127.4 |
| | Total | 36 | 97.167 | 16.2421 | 2.7070 | 91.671 | 102.662 | 68.3 | 127.4 |
| LDL | CONTROL | 6 | 16.917 | 4.3389 | 1.7713 | 12.363 | 21.470 | 11.7 | 24.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HF-HC Diet | 6 | 23.600 | 7.0297 | 2.8698 | 16.223 | 30.977 | 15.4 | 32.5 |
| | HF-HC Diet+1XID Oryzanol | 6 | 20.483 | 6.3657 | 2.5988 | 13.803 | 27.164 | 13.0 | 29.9 |
| | HF-HC Diet+2XID Oryzanol | 6 | 20.833 | 9.1936 | 3.7533 | 11.185 | 30.481 | 12.3 | 33.8 |
| | HF-HC Diet+1XCO | 6 | 23.233 | 1.9222 | .7847 | 21.216 | 25.251 | 21.3 | 25.9 |
| | HF-HC Diet+1XOryzanol | 6 | 19.067 | 7.8587 | 3.2083 | 10.820 | 27.314 | 12.6 | 30.9 |
| | Total | 36 | 20.689 | 6.5136 | 1.0856 | 18.485 | 22.893 | 11.7 | 33.8 |
| AST | CONTROL | 6 | 40.800 | 9.7009 | 3.9604 | 30.620 | 50.980 | 30.9 | 59.0 |
| | HF-HC Diet | 6 | 46.317 | 23.7979 | 9.7154 | 21.342 | 71.291 | 31.1 | 92.5 |
| | HF-HC Diet+1XID Oryzanol | 6 | 36.600 | 17.4350 | 7.1178 | 18.303 | 54.897 | 24.1 | 71.6 |
| | HF-HC Diet+2XID Oryzanol | 6 | 33.533 | 10.7364 | 4.3831 | 22.266 | 44.801 | 24.1 | 53.9 |
| | HF-HC Diet+1XCO | 6 | 40.133 | 9.0272 | 3.6853 | 30.660 | 49.607 | 30.7 | 55.1 |
| | HF-HC Diet+1XOryzanol | 6 | 43.267 | 12.9996 | 5.3071 | 29.624 | 56.909 | 33.2 | 66.8 |
| | Total | 36 | 40.108 | 14.4203 | 2.4034 | 35.229 | 44.987 | 24.1 | 92.5 |
| ALT | CONTROL | 6 | 42.950 | 5.6614 | 2.3112 | 37.009 | 48.891 | 38.0 | 53.7 |
| | HF-HC Diet | 6 | 54.517 | 10.1358 | 4.1379 | 43.880 | 65.153 | 40.7 | 69.5 |
| | HF-HC Diet+1XID Oryzanol | 6 | 48.417 | 7.4494 | 3.0412 | 40.599 | 56.234 | 40.6 | 58.1 |
| | HF-HC Diet+2XID Oryzanol | 6 | 47.917 | 20.6374 | 8.4252 | 26.259 | 69.574 | 23.2 | 85.6 |
| | HF-HC Diet+1XCO | 6 | 56.617 | 6.2352 | 2.5455 | 50.073 | 63.160 | 51.1 | 65.7 |
| | HF-HC Diet+1XOryzanol | 6 | 57.083 | 10.5002 | 4.2867 | 46.064 | 68.103 | 45.0 | 74.9 |
| | Total | 36 | 51.250 | 11.7056 | 1.9509 | 47.289 | 55.211 | 23.2 | 85.6 |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test of Homogeneity of Variances[a]**

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | 2.859 | 5 | 30 | .032 |
| CHOL | 3.071 | 5 | 30 | .023 |
| TRI | 1.887 | 5 | 30 | .126 |
| HDL | 3.029 | 5 | 30 | .025 |
| LDL | 2.948 | 5 | 30 | .028 |
| AST | 1.172 | 5 | 30 | .346 |
| ALT | 1.088 | 5 | 30 | .387 |

a. Day of Exposure = 30TH day of Oryzanol exposure

**ANOVA[a]**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Glucose | Between Groups | 918.917 | 5 | 183.783 | 2.234 | .077 |
| | Within Groups | 2467.833 | 30 | 82.261 | | |
| | Total | 3386.750 | 35 | | | |
| CHOL | Between Groups | 6215.596 | 5 | 1243.119 | 4.461 | .004 |
| | Within Groups | 8359.353 | 30 | 278.645 | | |
| | Total | 14574.949 | 35 | | | |
| TRI | Between Groups | 53887.050 | 5 | 10777.410 | 5.993 | .001 |
| | Within Groups | 53948.500 | 30 | 1798.283 | | |
| | Total | 107835.550 | 35 | | | |
| HDL | Between Groups | 3702.310 | 5 | 740.462 | 4.016 | .007 |
| | Within Groups | 5530.930 | 30 | 184.364 | | |
| | Total | 9233.240 | 35 | | | |
| LDL | Between Groups | 191.239 | 5 | 38.248 | .887 | .502 |
| | Within Groups | 1293.697 | 30 | 43.123 | | |
| | Total | 1484.936 | 35 | | | |
| AST | Between Groups | 627.219 | 5 | 125.444 | .566 | .725 |
| | Within Groups | 6650.888 | 30 | 221.696 | | |
| | Total | 7278.108 | 35 | | | |
| ALT | Between Groups | 969.173 | 5 | 193.835 | 1.520 | .213 |
| | Within Groups | 3826.557 | 30 | 127.552 | | |
| | Total | 4795.730 | 35 | | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

## Post Hoc Tests

**Multiple Comparisons[a]**

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | -.167 | 5.236 | .975 | -10.86 | 10.53 |
| | | HF-HC Diet+1XID Oryzanol | -10.833* | 5.236 | .047 | -21.53 | -.14 |
| | | HF-HC Diet+2XID Oryzanol | -2.667 | 5.236 | .614 | -13.36 | 8.03 |
| | | HF-HC Diet+1XCO | -6.833 | 5.236 | .202 | -17.53 | 3.86 |
| | | HF-HC Diet+1XOryzanol | -13.000* | 5.236 | .019 | -23.69 | -2.31 |
| | HF-HC Diet | CONTROL | .167 | 5.236 | .975 | -10.53 | 10.86 |
| | | HF-HC Diet+1XID Oryzanol | -10.667 | 5.236 | .051 | -21.36 | .03 |
| | | HF-HC Diet+2XID Oryzanol | -2.500 | 5.236 | .637 | -13.19 | 8.19 |
| | | HF-HC Diet+1XCO | -6.667 | 5.236 | .213 | -17.36 | 4.03 |
| | | HF-HC | -12.833* | 5.236 | .020 | -23.53 | -2.14 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Diet+1XOryzanol | | | | | |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 10.833* | 5.236 | .047 | .14 | 21.53 |
| | | HF-HC Diet | 10.667 | 5.236 | .051 | -.03 | 21.36 |
| | | HF-HC Diet+2XID Oryzanol | 8.167 | 5.236 | .129 | -2.53 | 18.86 |
| | | HF-HC Diet+1XCO | 4.000 | 5.236 | .451 | -6.69 | 14.69 |
| | | HF-HC Diet+1XOryzanol | -2.167 | 5.236 | .682 | -12.86 | 8.53 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 2.667 | 5.236 | .614 | -8.03 | 13.36 |
| | | HF-HC Diet | 2.500 | 5.236 | .637 | -8.19 | 13.19 |
| | | HF-HC Diet+1XID Oryzanol | -8.167 | 5.236 | .129 | -18.86 | 2.53 |
| | | HF-HC Diet+1XCO | -4.167 | 5.236 | .432 | -14.86 | 6.53 |
| | | HF-HC Diet+1XOryzanol | -10.333 | 5.236 | .058 | -21.03 | .36 |
| | HF-HC Diet+1XCO | CONTROL | 6.833 | 5.236 | .202 | -3.86 | 17.53 |
| | | HF-HC Diet | 6.667 | 5.236 | .213 | -4.03 | 17.36 |
| | | HF-HC Diet+1XID Oryzanol | -4.000 | 5.236 | .451 | -14.69 | 6.69 |
| | | HF-HC Diet+2XID Oryzanol | 4.167 | 5.236 | .432 | -6.53 | 14.86 |
| | | HF-HC Diet+1XOryzanol | -6.167 | 5.236 | .248 | -16.86 | 4.53 |
| | HF-HC Diet+1XOryzanol | CONTROL | 13.000* | 5.236 | .019 | 2.31 | 23.69 |
| | | HF-HC Diet | 12.833* | 5.236 | .020 | 2.14 | 23.53 |
| | | HF-HC Diet+1XID Oryzanol | 2.167 | 5.236 | .682 | -8.53 | 12.86 |
| | | HF-HC Diet+2XID Oryzanol | 10.333 | 5.236 | .058 | -.36 | 21.03 |
| | | HF-HC Diet+1XCO | 6.167 | 5.236 | .248 | -4.53 | 16.86 |
| CHOL | CONTROL | HF-HC Diet | -38.9000* | 9.6375 | .000 | -58.582 | -19.218 |
| | | HF-HC Diet+1XID Oryzanol | -32.2833* | 9.6375 | .002 | -51.966 | -12.601 |
| | | HF-HC Diet+2XID Oryzanol | -29.0000* | 9.6375 | .005 | -48.682 | -9.318 |
| | | HF-HC Diet+1XCO | -38.4667* | 9.6375 | .000 | -58.149 | -18.784 |
| | | HF-HC Diet+1XOryzanol | -25.3833* | 9.6375 | .013 | -45.066 | -5.701 |
| | HF-HC Diet | CONTROL | 38.9000* | 9.6375 | .000 | 19.218 | 58.582 |
| | | HF-HC Diet+1XID Oryzanol | 6.6167 | 9.6375 | .498 | -13.066 | 26.299 |
| | | HF-HC Diet+2XID Oryzanol | 9.9000 | 9.6375 | .313 | -9.782 | 29.582 |
| | | HF-HC Diet+1XCO | .4333 | 9.6375 | .964 | -19.249 | 20.116 |
| | | HF-HC Diet+1XOryzanol | 13.5167 | 9.6375 | .171 | -6.166 | 33.199 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 32.2833* | 9.6375 | .002 | 12.601 | 51.966 |
| | | HF-HC Diet | -6.6167 | 9.6375 | .498 | -26.299 | 13.066 |
| | | HF-HC Diet+2XID Oryzanol | 3.2833 | 9.6375 | .736 | -16.399 | 22.966 |
| | | HF-HC Diet+1XCO | -6.1833 | 9.6375 | .526 | -25.866 | 13.499 |
| | | HF-HC Diet+1XOryzanol | 6.9000 | 9.6375 | .480 | -12.782 | 26.582 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HF-HC Diet+2XID Oryzanol | CONTROL | 29.0000* | 9.6375 | .005 | 9.318 | 48.682 |
| | | HF-HC Diet | -9.9000 | 9.6375 | .313 | -29.582 | 9.782 |
| | | HF-HC Diet+1XID Oryzanol | -3.2833 | 9.6375 | .736 | -22.966 | 16.399 |
| | | HF-HC Diet+1XCO | -9.4667 | 9.6375 | .334 | -29.149 | 10.216 |
| | | HF-HC Diet+1XOryzanol | 3.6167 | 9.6375 | .710 | -16.066 | 23.299 |
| | HF-HC Diet+1XCO | CONTROL | 38.4667* | 9.6375 | .000 | 18.784 | 58.149 |
| | | HF-HC Diet | -.4333 | 9.6375 | .964 | -20.116 | 19.249 |
| | | HF-HC Diet+1XID Oryzanol | 6.1833 | 9.6375 | .526 | -13.499 | 25.866 |
| | | HF-HC Diet+2XID Oryzanol | 9.4667 | 9.6375 | .334 | -10.216 | 29.149 |
| | | HF-HC Diet+1XOryzanol | 13.0833 | 9.6375 | .185 | -6.599 | 32.766 |
| | HF-HC Diet+1XOryzanol | CONTROL | 25.3833* | 9.6375 | .013 | 5.701 | 45.066 |
| | | HF-HC Diet | -13.5167 | 9.6375 | .171 | -33.199 | 6.166 |
| | | HF-HC Diet+1XID Oryzanol | -6.9000 | 9.6375 | .480 | -26.582 | 12.782 |
| | | HF-HC Diet+2XID Oryzanol | -3.6167 | 9.6375 | .710 | -23.299 | 16.066 |
| | | HF-HC Diet+1XCO | -13.0833 | 9.6375 | .185 | -32.766 | 6.599 |
| TRI | CONTROL | HF-HC Diet | -124.5667* | 24.4832 | .000 | -174.568 | -74.565 |
| | | HF-HC Diet+1XID Oryzanol | -97.8667* | 24.4832 | .000 | -147.868 | -47.865 |
| | | HF-HC Diet+2XID Oryzanol | -76.5000* | 24.4832 | .004 | -126.501 | -26.499 |
| | | HF-HC Diet+1XCO | -95.3000* | 24.4832 | .001 | -145.301 | -45.299 |
| | | HF-HC Diet+1XOryzanol | -72.2667* | 24.4832 | .006 | -122.268 | -22.265 |
| | HF-HC Diet | CONTROL | 124.5667* | 24.4832 | .000 | 74.565 | 174.568 |
| | | HF-HC Diet+1XID Oryzanol | 26.7000 | 24.4832 | .284 | -23.301 | 76.701 |
| | | HF-HC Diet+2XID Oryzanol | 48.0667 | 24.4832 | .059 | -1.935 | 98.068 |
| | | HF-HC Diet+1XCO | 29.2667 | 24.4832 | .241 | -20.735 | 79.268 |
| | | HF-HC Diet+1XOryzanol | 52.3000* | 24.4832 | .041 | 2.299 | 102.301 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 97.8667* | 24.4832 | .000 | 47.865 | 147.868 |
| | | HF-HC Diet | -26.7000 | 24.4832 | .284 | -76.701 | 23.301 |
| | | HF-HC Diet+2XID Oryzanol | 21.3667 | 24.4832 | .390 | -28.635 | 71.368 |
| | | HF-HC Diet+1XCO | 2.5667 | 24.4832 | .917 | -47.435 | 52.568 |
| | | HF-HC Diet+1XOryzanol | 25.6000 | 24.4832 | .304 | -24.401 | 75.601 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 76.5000* | 24.4832 | .004 | 26.499 | 126.501 |
| | | HF-HC Diet | -48.0667 | 24.4832 | .059 | -98.068 | 1.935 |
| | | HF-HC Diet+1XID Oryzanol | -21.3667 | 24.4832 | .390 | -71.368 | 28.635 |
| | | HF-HC Diet+1XCO | -18.8000 | 24.4832 | .449 | -68.801 | 31.201 |
| | | HF-HC Diet+1XOryzanol | 4.2333 | 24.4832 | .864 | -45.768 | 54.235 |
| | HF-HC Diet+1XCO | CONTROL | 95.3000* | 24.4832 | .001 | 45.299 | 145.301 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet | -29.2667 | 24.4832 | .241 | -79.268 | 20.735 |
| | | HF-HC Diet+1XID Oryzanol | -2.5667 | 24.4832 | .917 | -52.568 | 47.435 |
| | | HF-HC Diet+2XID Oryzanol | 18.8000 | 24.4832 | .449 | -31.201 | 68.801 |
| | | HF-HC Diet+1XOryzanol | 23.0333 | 24.4832 | .354 | -26.968 | 73.035 |
| | HF-HC Diet+1XOryzanol | CONTROL | 72.2667* | 24.4832 | .006 | 22.265 | 122.268 |
| | | HF-HC Diet | -52.3000* | 24.4832 | .041 | -102.301 | -2.299 |
| | | HF-HC Diet+1XID Oryzanol | -25.6000 | 24.4832 | .304 | -75.601 | 24.401 |
| | | HF-HC Diet+2XID Oryzanol | -4.2333 | 24.4832 | .864 | -54.235 | 45.768 |
| | | HF-HC Diet+1XCO | -23.0333 | 24.4832 | .354 | -73.035 | 26.968 |
| HDL | CONTROL | HF-HC Diet | -29.3000* | 7.8393 | .001 | -45.310 | -13.290 |
| | | HF-HC Diet+1XID Oryzanol | -25.0167* | 7.8393 | .003 | -41.027 | -9.007 |
| | | HF-HC Diet+2XID Oryzanol | -20.5167* | 7.8393 | .014 | -36.527 | -4.507 |
| | | HF-HC Diet+1XCO | -30.4167* | 7.8393 | .001 | -46.427 | -14.407 |
| | | HF-HC Diet+1XOryzanol | -19.4500* | 7.8393 | .019 | -35.460 | -3.440 |
| | HF-HC Diet | CONTROL | 29.3000* | 7.8393 | .001 | 13.290 | 45.310 |
| | | HF-HC Diet+1XID Oryzanol | 4.2833 | 7.8393 | .589 | -11.727 | 20.293 |
| | | HF-HC Diet+2XID Oryzanol | 8.7833 | 7.8393 | .271 | -7.227 | 24.793 |
| | | HF-HC Diet+1XCO | -1.1167 | 7.8393 | .888 | -17.127 | 14.893 |
| | | HF-HC Diet+1XOryzanol | 9.8500 | 7.8393 | .219 | -6.160 | 25.860 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 25.0167* | 7.8393 | .003 | 9.007 | 41.027 |
| | | HF-HC Diet | -4.2833 | 7.8393 | .589 | -20.293 | 11.727 |
| | | HF-HC Diet+2XID Oryzanol | 4.5000 | 7.8393 | .570 | -11.510 | 20.510 |
| | | HF-HC Diet+1XCO | -5.4000 | 7.8393 | .496 | -21.410 | 10.610 |
| | | HF-HC Diet+1XOryzanol | 5.5667 | 7.8393 | .483 | -10.443 | 21.577 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 20.5167* | 7.8393 | .014 | 4.507 | 36.527 |
| | | HF-HC Diet | -8.7833 | 7.8393 | .271 | -24.793 | 7.227 |
| | | HF-HC Diet+1XID Oryzanol | -4.5000 | 7.8393 | .570 | -20.510 | 11.510 |
| | | HF-HC Diet+1XCO | -9.9000 | 7.8393 | .216 | -25.910 | 6.110 |
| | | HF-HC Diet+1XOryzanol | 1.0667 | 7.8393 | .893 | -14.943 | 17.077 |
| | HF-HC Diet+1XCO | CONTROL | 30.4167* | 7.8393 | .001 | 14.407 | 46.427 |
| | | HF-HC Diet | 1.1167 | 7.8393 | .888 | -14.893 | 17.127 |
| | | HF-HC Diet+1XID Oryzanol | 5.4000 | 7.8393 | .496 | -10.610 | 21.410 |
| | | HF-HC Diet+2XID Oryzanol | 9.9000 | 7.8393 | .216 | -6.110 | 25.910 |
| | | HF-HC Diet+1XOryzanol | 10.9667 | 7.8393 | .172 | -5.043 | 26.977 |
| | HF-HC Diet+1XOryzanol | CONTROL | 19.4500* | 7.8393 | .019 | 3.440 | 35.460 |
| | | HF-HC Diet | -9.8500 | 7.8393 | .219 | -25.860 | 6.160 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XID Oryzanol | -5.5667 | 7.8393 | .483 | -21.577 | 10.443 |
| | | HF-HC Diet+2XID Oryzanol | -1.0667 | 7.8393 | .893 | -17.077 | 14.943 |
| | | HF-HC Diet+1XCO | -10.9667 | 7.8393 | .172 | -26.977 | 5.043 |
| LDL | CONTROL | HF-HC Diet | -6.6833 | 3.7914 | .088 | -14.426 | 1.060 |
| | | HF-HC Diet+1XID Oryzanol | -3.5667 | 3.7914 | .354 | -11.310 | 4.176 |
| | | HF-HC Diet+2XID Oryzanol | -3.9167 | 3.7914 | .310 | -11.660 | 3.826 |
| | | HF-HC Diet+1XCO | -6.3167 | 3.7914 | .106 | -14.060 | 1.426 |
| | | HF-HC Diet+1XOryzanol | -2.1500 | 3.7914 | .575 | -9.893 | 5.593 |
| | HF-HC Diet | CONTROL | 6.6833 | 3.7914 | .088 | -1.060 | 14.426 |
| | | HF-HC Diet+1XID Oryzanol | 3.1167 | 3.7914 | .418 | -4.626 | 10.860 |
| | | HF-HC Diet+2XID Oryzanol | 2.7667 | 3.7914 | .471 | -4.976 | 10.510 |
| | | HF-HC Diet+1XCO | .3667 | 3.7914 | .924 | -7.376 | 8.110 |
| | | HF-HC Diet+1XOryzanol | 4.5333 | 3.7914 | .241 | -3.210 | 12.276 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 3.5667 | 3.7914 | .354 | -4.176 | 11.310 |
| | | HF-HC Diet | -3.1167 | 3.7914 | .418 | -10.860 | 4.626 |
| | | HF-HC Diet+2XID Oryzanol | -.3500 | 3.7914 | .927 | -8.093 | 7.393 |
| | | HF-HC Diet+1XCO | -2.7500 | 3.7914 | .474 | -10.493 | 4.993 |
| | | HF-HC Diet+1XOryzanol | 1.4167 | 3.7914 | .711 | -6.326 | 9.160 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 3.9167 | 3.7914 | .310 | -3.826 | 11.660 |
| | | HF-HC Diet | -2.7667 | 3.7914 | .471 | -10.510 | 4.976 |
| | | HF-HC Diet+1XID Oryzanol | .3500 | 3.7914 | .927 | -7.393 | 8.093 |
| | | HF-HC Diet+1XCO | -2.4000 | 3.7914 | .532 | -10.143 | 5.343 |
| | | HF-HC Diet+1XOryzanol | 1.7667 | 3.7914 | .645 | -5.976 | 9.510 |
| | HF-HC Diet+1XCO | CONTROL | 6.3167 | 3.7914 | .106 | -1.426 | 14.060 |
| | | HF-HC Diet | -.3667 | 3.7914 | .924 | -8.110 | 7.376 |
| | | HF-HC Diet+1XID Oryzanol | 2.7500 | 3.7914 | .474 | -4.993 | 10.493 |
| | | HF-HC Diet+2XID Oryzanol | 2.4000 | 3.7914 | .532 | -5.343 | 10.143 |
| | | HF-HC Diet+1XOryzanol | 4.1667 | 3.7914 | .281 | -3.576 | 11.910 |
| | HF-HC Diet+1XOryzanol | CONTROL | 2.1500 | 3.7914 | .575 | -5.593 | 9.893 |
| | | HF-HC Diet | -4.5333 | 3.7914 | .241 | -12.276 | 3.210 |
| | | HF-HC Diet+1XID Oryzanol | -1.4167 | 3.7914 | .711 | -9.160 | 6.326 |
| | | HF-HC Diet+2XID Oryzanol | -1.7667 | 3.7914 | .645 | -9.510 | 5.976 |
| | | HF-HC Diet+1XCO | -4.1667 | 3.7914 | .281 | -11.910 | 3.576 |
| AST | CONTROL | HF-HC Diet | -5.5167 | 8.5964 | .526 | -23.073 | 12.040 |
| | | HF-HC Diet+1XID Oryzanol | 4.2000 | 8.5964 | .629 | -13.356 | 21.756 |
| | | HF-HC Diet+2XID | 7.2667 | 8.5964 | .405 | -10.290 | 24.823 |

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|---|---|---|---|---|---|---|---|
| | | Oryzanol | | | | | |
| | | HF-HC Diet+1XCO | .6667 | 8.5964 | .939 | -16.890 | 18.223 |
| | | HF-HC Diet+1XOryzanol | -2.4667 | 8.5964 | .776 | -20.023 | 15.090 |
| | HF-HC Diet | CONTROL | 5.5167 | 8.5964 | .526 | -12.040 | 23.073 |
| | | HF-HC Diet+1XID Oryzanol | 9.7167 | 8.5964 | .267 | -7.840 | 27.273 |
| | | HF-HC Diet+2XID Oryzanol | 12.7833 | 8.5964 | .147 | -4.773 | 30.340 |
| | | HF-HC Diet+1XCO | 6.1833 | 8.5964 | .478 | -11.373 | 23.740 |
| | | HF-HC Diet+1XOryzanol | 3.0500 | 8.5964 | .725 | -14.506 | 20.606 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -4.2000 | 8.5964 | .629 | -21.756 | 13.356 |
| | | HF-HC Diet | -9.7167 | 8.5964 | .267 | -27.273 | 7.840 |
| | | HF-HC Diet+2XID Oryzanol | 3.0667 | 8.5964 | .724 | -14.490 | 20.623 |
| | | HF-HC Diet+1XCO | -3.5333 | 8.5964 | .684 | -21.090 | 14.023 |
| | | HF-HC Diet+1XOryzanol | -6.6667 | 8.5964 | .444 | -24.223 | 10.890 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | -7.2667 | 8.5964 | .405 | -24.823 | 10.290 |
| | | HF-HC Diet | -12.7833 | 8.5964 | .147 | -30.340 | 4.773 |
| | | HF-HC Diet+1XID Oryzanol | -3.0667 | 8.5964 | .724 | -20.623 | 14.490 |
| | | HF-HC Diet+1XCO | -6.6000 | 8.5964 | .449 | -24.156 | 10.956 |
| | | HF-HC Diet+1XOryzanol | -9.7333 | 8.5964 | .266 | -27.290 | 7.823 |
| | HF-HC Diet+1XCO | CONTROL | -.6667 | 8.5964 | .939 | -18.223 | 16.890 |
| | | HF-HC Diet | -6.1833 | 8.5964 | .478 | -23.740 | 11.373 |
| | | HF-HC Diet+1XID Oryzanol | 3.5333 | 8.5964 | .684 | -14.023 | 21.090 |
| | | HF-HC Diet+2XID Oryzanol | 6.6000 | 8.5964 | .449 | -10.956 | 24.156 |
| | | HF-HC Diet+1XOryzanol | -3.1333 | 8.5964 | .718 | -20.690 | 14.423 |
| | HF-HC Diet+1XOryzanol | CONTROL | 2.4667 | 8.5964 | .776 | -15.090 | 20.023 |
| | | HF-HC Diet | -3.0500 | 8.5964 | .725 | -20.606 | 14.506 |
| | | HF-HC Diet+1XID Oryzanol | 6.6667 | 8.5964 | .444 | -10.890 | 24.223 |
| | | HF-HC Diet+2XID Oryzanol | 9.7333 | 8.5964 | .266 | -7.823 | 27.290 |
| | | HF-HC Diet+1XCO | 3.1333 | 8.5964 | .718 | -14.423 | 20.690 |
| ALT | CONTROL | HF-HC Diet | -11.5667 | 6.5205 | .086 | -24.883 | 1.750 |
| | | HF-HC Diet+1XID Oryzanol | -5.4667 | 6.5205 | .408 | -18.783 | 7.850 |
| | | HF-HC Diet+2XID Oryzanol | -4.9667 | 6.5205 | .452 | -18.283 | 8.350 |
| | | HF-HC Diet+1XCO | -13.6667* | 6.5205 | .045 | -26.983 | -.350 |
| | | HF-HC Diet+1XOryzanol | -14.1333* | 6.5205 | .038 | -27.450 | -.817 |
| | HF-HC Diet | CONTROL | 11.5667 | 6.5205 | .086 | -1.750 | 24.883 |
| | | HF-HC Diet+1XID Oryzanol | 6.1000 | 6.5205 | .357 | -7.217 | 19.417 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+2XID Oryzanol | 6.6000 | 6.5205 | .320 | -6.717 | 19.917 |
| | | HF-HC Diet+1XCO | -2.1000 | 6.5205 | .750 | -15.417 | 11.217 |
| | | HF-HC Diet+1XOryzanol | -2.5667 | 6.5205 | .697 | -15.883 | 10.750 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 5.4667 | 6.5205 | .408 | -7.850 | 18.783 |
| | | HF-HC Diet | -6.1000 | 6.5205 | .357 | -19.417 | 7.217 |
| | | HF-HC Diet+2XID Oryzanol | .5000 | 6.5205 | .939 | -12.817 | 13.817 |
| | | HF-HC Diet+1XCO | -8.2000 | 6.5205 | .218 | -21.517 | 5.117 |
| | | HF-HC Diet+1XOryzanol | -8.6667 | 6.5205 | .194 | -21.983 | 4.650 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 4.9667 | 6.5205 | .452 | -8.350 | 18.283 |
| | | HF-HC Diet | -6.6000 | 6.5205 | .320 | -19.917 | 6.717 |
| | | HF-HC Diet+1XID Oryzanol | -.5000 | 6.5205 | .939 | -13.817 | 12.817 |
| | | HF-HC Diet+1XCO | -8.7000 | 6.5205 | .192 | -22.017 | 4.617 |
| | | HF-HC Diet+1XOryzanol | -9.1667 | 6.5205 | .170 | -22.483 | 4.150 |
| | HF-HC Diet+1XCO | CONTROL | 13.6667* | 6.5205 | .045 | .350 | 26.983 |
| | | HF-HC Diet | 2.1000 | 6.5205 | .750 | -11.217 | 15.417 |
| | | HF-HC Diet+1XID Oryzanol | 8.2000 | 6.5205 | .218 | -5.117 | 21.517 |
| | | HF-HC Diet+2XID Oryzanol | 8.7000 | 6.5205 | .192 | -4.617 | 22.017 |
| | | HF-HC Diet+1XOryzanol | -.4667 | 6.5205 | .943 | -13.783 | 12.850 |
| | HF-HC Diet+1XOryzanol | CONTROL | 14.1333* | 6.5205 | .038 | .817 | 27.450 |
| | | HF-HC Diet | 2.5667 | 6.5205 | .697 | -10.750 | 15.883 |
| | | HF-HC Diet+1XID Oryzanol | 8.6667 | 6.5205 | .194 | -4.650 | 21.983 |
| | | HF-HC Diet+2XID Oryzanol | 9.1667 | 6.5205 | .170 | -4.150 | 22.483 |
| | | HF-HC Diet+1XCO | .4667 | 6.5205 | .943 | -12.850 | 13.783 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 30TH day of Oryzanol exposure

## Day of Exposure = 30TH day of Oryzanol exposure
## Kruskal-Wallis Test

**Ranks[a]**

| Test group | | N | Mean Rank |
|---|---|---|---|
| Glucose | CONTROL | 6 | 8.92 |
| | HF-HC Diet | 6 | 11.67 |
| | HF-HC Diet+1XID Oryzanol | 6 | 26.92 |
| | HF-HC Diet+2XID Oryzanol | 6 | 16.08 |
| | HF-HC Diet+1XCO | 6 | 24.00 |
| | HF-HC Diet+1XOryzanol | 6 | 23.42 |
| | Total | 36 | |

| | | | |
|---|---|---|---|
| CHOL | CONTROL | 6 | 4.83 |
| | HF-HC Diet | 6 | 24.33 |
| | HF-HC Diet+1XID Oryzanol | 6 | 22.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 19.17 |
| | HF-HC Diet+1XCO | 6 | 24.50 |
| | HF-HC Diet+1XOryzanol | 6 | 16.17 |
| | Total | 36 | |
| HDL | CONTROL | 6 | 5.50 |
| | HF-HC Diet | 6 | 24.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 21.67 |
| | HF-HC Diet+2XID Oryzanol | 6 | 18.17 |
| | HF-HC Diet+1XCO | 6 | 24.50 |
| | HF-HC Diet+1XOryzanol | 6 | 17.17 |
| | Total | 36 | |
| LDL | CONTROL | 6 | 12.25 |
| | HF-HC Diet | 6 | 23.58 |
| | HF-HC Diet+1XID Oryzanol | 6 | 18.08 |
| | HF-HC Diet+2XID Oryzanol | 6 | 17.67 |
| | HF-HC Diet+1XCO | 6 | 23.92 |
| | HF-HC Diet+1XOryzanol | 6 | 15.50 |
| | Total | 36 | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b,c]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Chi-Square | 14.723 | 14.862 | 13.360 | 5.631 |
| df | 5 | 5 | 5 | 5 |
| Asymp. Sig. | .012 | .011 | .020 | .344 |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Kruskal Wallis Test
c. Grouping Variable: Test group

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 5.67 | 34.00 |
| | HF-HC Diet | 6 | 7.33 | 44.00 |
| | Total | 12 | | |
| CHOL | CONTROL | 6 | 3.67 | 22.00 |
| | HF-HC Diet | 6 | 9.33 | 56.00 |
| | Total | 12 | | |

| | | | | |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 4.17 | 25.00 |
| | HF-HC Diet | 6 | 8.83 | 53.00 |
| | Total | 12 | | |
| LDL | CONTROL | 6 | 4.67 | 28.00 |
| | HF-HC Diet | 6 | 8.33 | 50.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 13.000 | 1.000 | 4.000 | 7.000 |
| Wilcoxon W | 34.000 | 22.000 | 25.000 | 28.000 |
| Z | -.815 | -2.722 | -2.242 | -1.761 |
| Asymp. Sig. (2-tailed) | .415 | .006 | .025 | .078 |
| Exact Sig. [2*(1-tailed Sig.)] | .485[c] | .004[c] | .026[c] | .093[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 3.83 | 23.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 9.17 | 55.00 |
| | Total | 12 | | |
| CHOL | CONTROL | 6 | 3.67 | 22.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 9.33 | 56.00 |
| | Total | 12 | | |
| HDL | CONTROL | 6 | 3.50 | 21.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 9.50 | 57.00 |
| | Total | 12 | | |
| LDL | CONTROL | 6 | 5.25 | 31.50 |
| | HF-HC Diet+1XID Oryzanol | 6 | 7.75 | 46.50 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 2.000 | 1.000 | 0.000 | 10.500 |
| Wilcoxon W | 23.000 | 22.000 | 21.000 | 31.500 |

| | | | | |
|---|---|---|---|---|
| Z | -2.585 | -2.722 | -2.882 | -1.203 |
| Asymp. Sig. (2-tailed) | .010 | .006 | .004 | .229 |
| Exact Sig. [2*(1-tailed Sig.)] | .009[c] | .004[c] | .002[c] | .240[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 4.83 | 29.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 8.17 | 49.00 |
| | Total | 12 | | |
| CHOL | CONTROL | 6 | 4.00 | 24.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 9.00 | 54.00 |
| | Total | 12 | | |
| HDL | CONTROL | 6 | 4.17 | 25.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 8.83 | 53.00 |
| | Total | 12 | | |
| LDL | CONTROL | 6 | 6.00 | 36.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 7.00 | 42.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 8.000 | 3.000 | 4.000 | 15.000 |
| Wilcoxon W | 29.000 | 24.000 | 25.000 | 36.000 |
| Z | -1.676 | -2.402 | -2.242 | -.480 |
| Asymp. Sig. (2-tailed) | .094 | .016 | .025 | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .132[c] | .015[c] | .026[c] | .699[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 4.00 | 24.00 |

| | | | | |
|---|---|---|---|---|
| | HF-HC Diet+1XCO | 6 | 9.00 | 54.00 |
| | Total | 12 | | |
| CHOL | CONTROL | 6 | 3.50 | 21.00 |
| | HF-HC Diet+1XCO | 6 | 9.50 | 57.00 |
| | Total | 12 | | |
| HDL | CONTROL | 6 | 3.50 | 21.00 |
| | HF-HC Diet+1XCO | 6 | 9.50 | 57.00 |
| | Total | 12 | | |
| LDL | CONTROL | 6 | 4.00 | 24.00 |
| | HF-HC Diet+1XCO | 6 | 9.00 | 54.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 3.000 | 0.000 | 0.000 | 3.000 |
| Wilcoxon W | 24.000 | 21.000 | 21.000 | 24.000 |
| Z | -2.423 | -2.882 | -2.882 | -2.402 |
| Asymp. Sig. (2-tailed) | .015 | .004 | .004 | .016 |
| Exact Sig. [2*(1-tailed Sig.)] | .015[c] | .002[c] | .002[c] | .015[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | CONTROL | 6 | 4.58 | 27.50 |
| | HF-HC Diet+1XOryzanol | 6 | 8.42 | 50.50 |
| | Total | 12 | | |
| CHOL | CONTROL | 6 | 4.00 | 24.00 |
| | HF-HC Diet+1XOryzanol | 6 | 9.00 | 54.00 |
| | Total | 12 | | |
| HDL | CONTROL | 6 | 4.17 | 25.00 |
| | HF-HC Diet+1XOryzanol | 6 | 8.83 | 53.00 |
| | Total | 12 | | |
| LDL | CONTROL | 6 | 6.33 | 38.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.67 | 40.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

| Test Statistics[a,b] | | | | |
|---|---|---|---|---|
| | Glucose | CHOL | HDL | LDL |
| Mann-Whitney U | 6.500 | 3.000 | 4.000 | 17.000 |
| Wilcoxon W | 27.500 | 24.000 | 25.000 | 38.000 |
| Z | -1.881 | -2.402 | -2.242 | -.160 |
| Asymp. Sig. (2-tailed) | .060 | .016 | .025 | .873 |
| Exact Sig. [2*(1-tailed Sig.)] | .065[c] | .015[c] | .026[c] | .937[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

| Ranks[a] | | | | |
|---|---|---|---|---|
| Test group | | N | Mean Rank | Sum of Ranks |
| Glucose | HF-HC Diet | 6 | 3.67 | 22.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 9.33 | 56.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet | 6 | 6.83 | 41.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 6.17 | 37.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

| Test Statistics[a,b] | | | | |
|---|---|---|---|---|
| | Glucose | CHOL | HDL | LDL |
| Mann-Whitney U | 1.000 | 16.000 | 12.000 | 12.000 |
| Wilcoxon W | 22.000 | 37.000 | 33.000 | 33.000 |
| Z | -2.746 | -.320 | -.961 | -.964 |
| Asymp. Sig. (2-tailed) | .006 | .749 | .337 | .335 |
| Exact Sig. [2*(1-tailed Sig.)] | .004[c] | .818[c] | .394[c] | .394[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 5.50 | 33.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 7.50 | 45.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet | 6 | 7.83 | 47.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.17 | 31.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet | 6 | 7.17 | 43.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.83 | 35.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet | 6 | 7.33 | 44.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.67 | 34.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 12.000 | 10.000 | 14.000 | 13.000 |
| Wilcoxon W | 33.000 | 31.000 | 35.000 | 34.000 |
| Z | -.978 | -1.281 | -.641 | -.801 |
| Asymp. Sig. (2-tailed) | .328 | .200 | .522 | .423 |
| Exact Sig. [2*(1-tailed Sig.)] | .394[c] | .240[c] | .589[c] | .485[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 4.17 | 25.00 |
| | HF-HC Diet+1XCO | 6 | 8.83 | 53.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet | 6 | 6.50 | 39.00 |

| | | | | |
|---|---|---|---|---|
| | HF-HC Diet+1XCO | 6 | 6.50 | 39.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet | 6 | 7.33 | 44.00 |
| | HF-HC Diet+1XCO | 6 | 5.67 | 34.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet | 6 | 6.75 | 40.50 |
| | HF-HC Diet+1XCO | 6 | 6.25 | 37.50 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 4.000 | 18.000 | 13.000 | 16.500 |
| Wilcoxon W | 25.000 | 39.000 | 34.000 | 37.500 |
| Z | -2.274 | 0.000 | -.801 | -.241 |
| Asymp. Sig. (2-tailed) | .023 | 1.000 | .423 | .810 |
| Exact Sig. [2*(1-tailed Sig.)] | .026[c] | 1.000[c] | .485[c] | .818[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet | 6 | 5.00 | 30.00 |
| | HF-HC Diet+1XOryzanol | 6 | 8.00 | 48.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet | 6 | 7.83 | 47.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.17 | 31.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet | 6 | 7.17 | 43.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.83 | 35.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet | 6 | 7.67 | 46.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.33 | 32.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

| Test Statistics[a,b] | | | | |
|---|---|---|---|---|
| | Glucose | CHOL | HDL | LDL |
| Mann-Whitney U | 9.000 | 10.000 | 14.000 | 11.000 |
| Wilcoxon W | 30.000 | 31.000 | 35.000 | 32.000 |
| Z | -1.449 | -1.281 | -.641 | -1.123 |
| Asymp. Sig. (2-tailed) | .147 | .200 | .522 | .261 |
| Exact Sig. [2*(1-tailed Sig.)] | .180[c] | .240[c] | .589[c] | .310[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

| Ranks[a] | | | | |
|---|---|---|---|---|
| Test group | | N | Mean Rank | Sum of Ranks |
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 8.75 | 52.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 4.25 | 25.50 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+1XID Oryzanol | 6 | 6.67 | 40.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.33 | 38.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 7.50 | 45.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+1XID Oryzanol | 6 | 6.50 | 39.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.50 | 39.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

| Test Statistics[a,b] | | | | |
|---|---|---|---|---|
| | Glucose | CHOL | HDL | LDL |
| Mann-Whitney U | 4.500 | 17.000 | 12.000 | 18.000 |
| Wilcoxon W | 25.500 | 38.000 | 33.000 | 39.000 |
| Z | -2.173 | -.160 | -.961 | 0.000 |
| Asymp. Sig. (2-tailed) | .030 | .873 | .337 | 1.000 |
| Exact Sig. [2*(1-tailed Sig.)] | .026[c] | .937[c] | .394[c] | 1.000[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 7.17 | 43.00 |
| | HF-HC Diet+1XCO | 6 | 5.83 | 35.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+1XID Oryzanol | 6 | 6.00 | 36.00 |
| | HF-HC Diet+1XCO | 6 | 7.00 | 42.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 5.67 | 34.00 |
| | HF-HC Diet+1XCO | 6 | 7.33 | 44.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+1XID Oryzanol | 6 | 5.33 | 32.00 |
| | HF-HC Diet+1XCO | 6 | 7.67 | 46.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 14.000 | 15.000 | 13.000 | 11.000 |
| Wilcoxon W | 35.000 | 36.000 | 34.000 | 32.000 |
| Z | -.643 | -.480 | -.801 | -1.121 |
| Asymp. Sig. (2-tailed) | .520 | .631 | .423 | .262 |
| Exact Sig. [2*(1-tailed Sig.)] | .589[c] | .699[c] | .485[c] | .310[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XID Oryzanol | 6 | 6.50 | 39.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.50 | 39.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+1XID Oryzanol | 6 | 7.83 | 47.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.17 | 31.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 7.50 | 45.00 |

| | | | | |
|---|---|---|---|---|
| | HF-HC Diet+1XOryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+1XID Oryzanol | 6 | 7.00 | 42.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.00 | 36.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 18.000 | 10.000 | 12.000 | 15.000 |
| Wilcoxon W | 39.000 | 31.000 | 33.000 | 36.000 |
| Z | 0.000 | -1.281 | -.961 | -.481 |
| Asymp. Sig. (2-tailed) | 1.000 | .200 | .337 | .630 |
| Exact Sig. [2*(1-tailed Sig.)] | 1.000[c] | .240[c] | .394[c] | .699[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+2XID Oryzanol | 6 | 4.83 | 29.00 |
| | HF-HC Diet+1XCO | 6 | 8.17 | 49.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+2XID Oryzanol | 6 | 6.00 | 36.00 |
| | HF-HC Diet+1XCO | 6 | 7.00 | 42.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+2XID Oryzanol | 6 | 5.33 | 32.00 |
| | HF-HC Diet+1XCO | 6 | 7.67 | 46.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+2XID Oryzanol | 6 | 5.50 | 33.00 |
| | HF-HC Diet+1XCO | 6 | 7.50 | 45.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 8.000 | 15.000 | 11.000 | 12.000 |
| Wilcoxon W | 29.000 | 36.000 | 32.000 | 33.000 |
| Z | -1.613 | -.480 | -1.121 | -.961 |

| | | | | |
|---|---|---|---|---|
| Asymp. Sig. (2-tailed) | .107 | .631 | .262 | .337 |
| Exact Sig. [2*(1-tailed Sig.)] | .132[c] | .699[c] | .310[c] | .394[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+2XID Oryzanol | 6 | 5.33 | 32.00 |
| | HF-HC Diet+1XOryzanol | 6 | 7.67 | 46.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+2XID Oryzanol | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.33 | 38.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+2XID Oryzanol | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.33 | 38.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+2XID Oryzanol | 6 | 7.00 | 42.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.00 | 36.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 11.000 | 17.000 | 17.000 | 15.000 |
| Wilcoxon W | 32.000 | 38.000 | 38.000 | 36.000 |
| Z | -1.133 | -.160 | -.160 | -.481 |
| Asymp. Sig. (2-tailed) | .257 | .873 | .873 | .630 |
| Exact Sig. [2*(1-tailed Sig.)] | .310[c] | .937[c] | .937[c] | .699[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 30TH day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Glucose | HF-HC Diet+1XCO | 6 | 6.17 | 37.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.83 | 41.00 |
| | Total | 12 | | |
| CHOL | HF-HC Diet+1XCO | 6 | 8.50 | 51.00 |
| | HF-HC Diet+1XOryzanol | 6 | 4.50 | 27.00 |
| | Total | 12 | | |
| HDL | HF-HC Diet+1XCO | 6 | 8.33 | 50.00 |
| | HF-HC Diet+1XOryzanol | 6 | 4.67 | 28.00 |
| | Total | 12 | | |
| LDL | HF-HC Diet+1XCO | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

a. Day of Exposure = 30TH day of Oryzanol exposure

**Test Statistics[a,b]**

| | Glucose | CHOL | HDL | LDL |
|---|---|---|---|---|
| Mann-Whitney U | 16.000 | 6.000 | 7.000 | 12.000 |
| Wilcoxon W | 37.000 | 27.000 | 28.000 | 33.000 |
| Z | -.323 | -1.922 | -1.761 | -.962 |
| Asymp. Sig. (2-tailed) | .747 | .055 | .078 | .336 |
| Exact Sig. [2*(1-tailed Sig.)] | .818[c] | .065[c] | .093[c] | .394[c] |

a. Day of Exposure = 30TH day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure

**Descriptives[a]**

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Glucose | CONTROL | 6 | 70.33 | 6.154 | 2.512 | 63.88 | 76.79 | 62 | 80 |
| | HF-HC Diet | 6 | 84.00 | 7.483 | 3.055 | 76.15 | 91.85 | 73 | 93 |
| | HF-HC Diet+1XID Oryzanol | 6 | 79.50 | 4.848 | 1.979 | 74.41 | 84.59 | 73 | 86 |
| | HF-HC Diet+2XID Oryzanol | 6 | 80.50 | 7.396 | 3.019 | 72.74 | 88.26 | 73 | 90 |
| | HF-HC Diet+1XCO | 6 | 70.33 | 6.154 | 2.512 | 63.88 | 76.79 | 62 | 80 |
| | HF-HC | 6 | 80.17 | 8.931 | 3.646 | 70.79 | 89.54 | 69 | 95 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Diet+1XOryzanol | | | | | | | | |
| | Total | 36 | 77.47 | 8.348 | 1.391 | 74.65 | 80.30 | 62 | 95 |
| CHOL | CONTROL | 6 | 90.333 | 16.0786 | 6.5641 | 73.460 | 107.207 | 75.4 | 121.1 |
| | HF-HC Diet | 6 | 121.767 | 31.0138 | 12.6613 | 89.220 | 154.314 | 67.4 | 150.7 |
| | HF-HC Diet+1XID Oryzanol | 6 | 117.517 | 13.8103 | 5.6381 | 103.024 | 132.010 | 105.0 | 141.3 |
| | HF-HC Diet+2XID Oryzanol | 6 | 117.140 | 24.7103 | 10.0879 | 91.208 | 143.072 | 87.4 | 153.7 |
| | HF-HC Diet+1XCO | 6 | 120.650 | 15.9719 | 6.5205 | 103.888 | 137.412 | 105.9 | 150.8 |
| | HF-HC Diet+1XOryzanol | 6 | 108.700 | 31.9273 | 13.0343 | 75.194 | 142.206 | 62.6 | 157.8 |
| | Total | 36 | 112.684 | 24.3242 | 4.0540 | 104.454 | 120.915 | 62.6 | 157.8 |
| TRI | CONTROL | 6 | 151.917 | 37.3347 | 15.2418 | 112.736 | 191.097 | 118.1 | 221.9 |
| | HF-HC Diet | 6 | 251.083 | 37.7758 | 15.4219 | 211.440 | 290.727 | 210.6 | 313.8 |
| | HF-HC Diet+1XID Oryzanol | 6 | 257.350 | 58.0418 | 23.6955 | 196.439 | 318.261 | 192.4 | 356.7 |
| | HF-HC Diet+2XID Oryzanol | 6 | 226.050 | 38.7741 | 15.8295 | 185.359 | 266.741 | 181.7 | 283.5 |
| | HF-HC Diet+1XCO | 6 | 258.633 | 79.6438 | 32.5144 | 175.052 | 342.214 | 220.6 | 420.5 |
| | HF-HC Diet+1XOryzanol | 6 | 254.517 | 48.0493 | 19.6160 | 204.092 | 304.941 | 203.2 | 306.2 |
| | Total | 36 | 233.258 | 61.8060 | 10.3010 | 212.346 | 254.170 | 118.1 | 420.5 |
| HDL | CONTROL | 6 | 55.450 | 6.3821 | 2.6055 | 48.752 | 62.148 | 48.2 | 66.7 |
| | HF-HC Diet | 6 | 76.733 | 13.2618 | 5.4141 | 62.816 | 90.651 | 58.9 | 93.7 |
| | HF-HC Diet+1XID Oryzanol | 6 | 63.933 | 10.0271 | 4.0935 | 53.411 | 74.456 | 50.8 | 76.8 |
| | HF-HC Diet+2XID Oryzanol | 6 | 68.933 | 16.5535 | 6.7579 | 51.561 | 86.305 | 44.2 | 86.5 |
| | HF-HC Diet+1XCO | 6 | 67.600 | 4.6985 | 1.9182 | 62.669 | 72.531 | 60.2 | 73.6 |
| | HF-HC Diet+1XOryzanol | 6 | 62.083 | 14.9640 | 6.1090 | 46.380 | 77.787 | 39.5 | 83.7 |
| | Total | 36 | 65.789 | 12.7928 | 2.1321 | 61.460 | 70.117 | 39.5 | 93.7 |
| LDL | CONTROL | 6 | 17.333 | 5.1254 | 2.0924 | 11.954 | 22.711 | 12.0 | 26.3 |
| | HF-HC Diet | 6 | 22.230 | 5.3889 | 2.2000 | 16.574 | 27.885 | 15.5 | 28.6 |
| | HF-HC Diet+1XID Oryzanol | 6 | 18.943 | 5.1113 | 2.0867 | 13.579 | 24.307 | 14.3 | 26.7 |
| | HF-HC Diet+2XID Oryzanol | 6 | 21.005 | 9.6252 | 3.9295 | 10.904 | 31.106 | 14.3 | 40.2 |
| | HF-HC Diet+1XCO | 6 | 21.456 | 3.8795 | 1.5838 | 17.385 | 25.528 | 15.9 | 25.9 |
| | HF-HC Diet+1XOryzanol | 6 | 18.235 | 7.4702 | 3.0497 | 10.395 | 26.074 | 9.3 | 30.2 |
| | Total | 36 | 19.867 | 6.1892 | 1.0315 | 17.773 | 21.961 | 9.3 | 40.2 |
| AST | CONTROL | 6 | 64.100 | 32.5851 | 13.3028 | 29.904 | 98.296 | 29.4 | 117.4 |
| | HF-HC Diet | 6 | 56.200 | 8.8648 | 3.6190 | 46.897 | 65.503 | 42.7 | 69.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 61.300 | 16.8217 | 6.8674 | 43.647 | 78.953 | 29.9 | 79.8 |
| | HF-HC Diet+2XID Oryzanol | 6 | 51.967 | 15.7405 | 6.4260 | 35.448 | 68.485 | 23.5 | 65.6 |
| | HF-HC Diet+1XCO | 6 | 60.483 | 30.3116 | 12.3747 | 28.673 | 92.293 | 28.2 | 112.4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HF-HC Diet+1XOryzanol | 6 | 39.883 | 15.1912 | 6.2018 | 23.941 | 55.826 | 22.0 | 60.8 |
| | Total | 36 | 55.656 | 21.6717 | 3.6120 | 48.323 | 62.988 | 22.0 | 117.4 |
| ALT | CONTROL | 6 | 59.350 | 28.4940 | 11.6326 | 29.447 | 89.253 | 37.5 | 114.7 |
| | HF-HC Diet | 6 | 65.367 | 13.5823 | 5.5449 | 51.113 | 79.620 | 44.7 | 86.3 |
| | HF-HC Diet+1XID Oryzanol | 6 | 69.583 | 19.0827 | 7.7905 | 49.557 | 89.609 | 41.0 | 99.0 |
| | HF-HC Diet+2XID Oryzanol | 6 | 61.167 | 10.7771 | 4.3997 | 49.857 | 72.477 | 50.7 | 79.0 |
| | HF-HC Diet+1XCO | 6 | 53.683 | 21.0634 | 8.5991 | 31.579 | 75.788 | 36.4 | 95.4 |
| | HF-HC Diet+1XOryzanol | 6 | 51.100 | 8.9492 | 3.6535 | 41.708 | 60.492 | 42.6 | 65.0 |
| | Total | 36 | 60.042 | 18.0881 | 3.0147 | 53.922 | 66.162 | 36.4 | 114.7 |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test of Homogeneity of Variances[a]**

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Glucose | .575 | 5 | 30 | .718 |
| CHOL | 1.190 | 5 | 30 | .337 |
| TRI | .720 | 5 | 30 | .614 |
| HDL | 2.617 | 5 | 30 | .044 |
| LDL | .645 | 5 | 30 | .667 |
| AST | 1.878 | 5 | 30 | .128 |
| ALT | .893 | 5 | 30 | .498 |

a. Day of Exposure = 43rd day of Oryzanol exposure

**ANOVA[a]**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Glucose | Between Groups | 990.472 | 5 | 198.094 | 4.103 | .006 |
| | Within Groups | 1448.500 | 30 | 48.283 | | |
| | Total | 2438.972 | 35 | | | |
| CHOL | Between Groups | 4227.523 | 5 | 845.505 | 1.539 | .208 |
| | Within Groups | 16480.802 | 30 | 549.360 | | |
| | Total | 20708.325 | 35 | | | |
| TRI | Between Groups | 51974.239 | 5 | 10394.848 | 3.816 | .009 |
| | Within Groups | 81725.208 | 30 | 2724.174 | | |
| | Total | 133699.448 | 35 | | | |
| HDL | Between Groups | 1542.092 | 5 | 308.418 | 2.210 | .079 |
| | Within Groups | 4185.823 | 30 | 139.527 | | |
| | Total | 5727.916 | 35 | | | |
| LDL | Between Groups | 116.064 | 5 | 23.213 | .569 | .723 |
| | Within Groups | 1224.672 | 30 | 40.822 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Total | 1340.735 | 35 | | | |
| AST | Between Groups | 2334.859 | 5 | 466.972 | .993 | .438 |
| | Within Groups | 14103.370 | 30 | 470.112 | | |
| | Total | 16438.229 | 35 | | | |
| ALT | Between Groups | 1449.149 | 5 | 289.830 | .869 | .513 |
| | Within Groups | 10002.178 | 30 | 333.406 | | |
| | Total | 11451.328 | 35 | | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

## Post Hoc Tests

**Multiple Comparisons[a]**

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Glucose | CONTROL | HF-HC Diet | -13.667* | 4.012 | .002 | -21.86 | -5.47 |
| | | HF-HC Diet+1XID Oryzanol | -9.167* | 4.012 | .030 | -17.36 | -.97 |
| | | HF-HC Diet+2XID Oryzanol | -10.167* | 4.012 | .017 | -18.36 | -1.97 |
| | | HF-HC Diet+1XCO | 0.000 | 4.012 | 1.000 | -8.19 | 8.19 |
| | | HF-HC Diet+1XOryzanol | -9.833* | 4.012 | .020 | -18.03 | -1.64 |
| | HF-HC Diet | CONTROL | 13.667* | 4.012 | .002 | 5.47 | 21.86 |
| | | HF-HC Diet+1XID Oryzanol | 4.500 | 4.012 | .271 | -3.69 | 12.69 |
| | | HF-HC Diet+2XID Oryzanol | 3.500 | 4.012 | .390 | -4.69 | 11.69 |
| | | HF-HC Diet+1XCO | 13.667* | 4.012 | .002 | 5.47 | 21.86 |
| | | HF-HC Diet+1XOryzanol | 3.833 | 4.012 | .347 | -4.36 | 12.03 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 9.167* | 4.012 | .030 | .97 | 17.36 |
| | | HF-HC Diet | -4.500 | 4.012 | .271 | -12.69 | 3.69 |
| | | HF-HC Diet+2XID Oryzanol | -1.000 | 4.012 | .805 | -9.19 | 7.19 |
| | | HF-HC Diet+1XCO | 9.167* | 4.012 | .030 | .97 | 17.36 |
| | | HF-HC Diet+1XOryzanol | -.667 | 4.012 | .869 | -8.86 | 7.53 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 10.167* | 4.012 | .017 | 1.97 | 18.36 |
| | | HF-HC Diet | -3.500 | 4.012 | .390 | -11.69 | 4.69 |
| | | HF-HC Diet+1XID Oryzanol | 1.000 | 4.012 | .805 | -7.19 | 9.19 |
| | | HF-HC Diet+1XCO | 10.167* | 4.012 | .017 | 1.97 | 18.36 |
| | | HF-HC Diet+1XOryzanol | .333 | 4.012 | .934 | -7.86 | 8.53 |
| | HF-HC Diet+1XCO | CONTROL | 0.000 | 4.012 | 1.000 | -8.19 | 8.19 |
| | | HF-HC Diet | -13.667* | 4.012 | .002 | -21.86 | -5.47 |
| | | HF-HC Diet+1XID | -9.167* | 4.012 | .030 | -17.36 | -.97 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Oryzanol | | | | | |
| | | HF-HC Diet+2XID Oryzanol | -10.167* | 4.012 | .017 | -18.36 | -1.97 |
| | | HF-HC Diet+1XOryzanol | -9.833* | 4.012 | .020 | -18.03 | -1.64 |
| | HF-HC Diet+1XOryzanol | CONTROL | 9.833* | 4.012 | .020 | 1.64 | 18.03 |
| | | HF-HC Diet | -3.833 | 4.012 | .347 | -12.03 | 4.36 |
| | | HF-HC Diet+1XID Oryzanol | .667 | 4.012 | .869 | -7.53 | 8.86 |
| | | HF-HC Diet+2XID Oryzanol | -.333 | 4.012 | .934 | -8.53 | 7.86 |
| | | HF-HC Diet+1XCO | 9.833* | 4.012 | .020 | 1.64 | 18.03 |
| CHOL | CONTROL | HF-HC Diet | -31.4333* | 13.5322 | .027 | -59.070 | -3.797 |
| | | HF-HC Diet+1XID Oryzanol | -27.1833 | 13.5322 | .054 | -54.820 | .453 |
| | | HF-HC Diet+2XID Oryzanol | -26.8067 | 13.5322 | .057 | -54.443 | .830 |
| | | HF-HC Diet+1XCO | -30.3167* | 13.5322 | .033 | -57.953 | -2.680 |
| | | HF-HC Diet+1XOryzanol | -18.3667 | 13.5322 | .185 | -46.003 | 9.270 |
| | HF-HC Diet | CONTROL | 31.4333* | 13.5322 | .027 | 3.797 | 59.070 |
| | | HF-HC Diet+1XID Oryzanol | 4.2500 | 13.5322 | .756 | -23.386 | 31.886 |
| | | HF-HC Diet+2XID Oryzanol | 4.6267 | 13.5322 | .735 | -23.010 | 32.263 |
| | | HF-HC Diet+1XCO | 1.1167 | 13.5322 | .935 | -26.520 | 28.753 |
| | | HF-HC Diet+1XOryzanol | 13.0667 | 13.5322 | .342 | -14.570 | 40.703 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 27.1833 | 13.5322 | .054 | -.453 | 54.820 |
| | | HF-HC Diet | -4.2500 | 13.5322 | .756 | -31.886 | 23.386 |
| | | HF-HC Diet+2XID Oryzanol | .3767 | 13.5322 | .978 | -27.260 | 28.013 |
| | | HF-HC Diet+1XCO | -3.1333 | 13.5322 | .818 | -30.770 | 24.503 |
| | | HF-HC Diet+1XOryzanol | 8.8167 | 13.5322 | .520 | -18.820 | 36.453 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 26.8067 | 13.5322 | .057 | -.830 | 54.443 |
| | | HF-HC Diet | -4.6267 | 13.5322 | .735 | -32.263 | 23.010 |
| | | HF-HC Diet+1XID Oryzanol | -.3767 | 13.5322 | .978 | -28.013 | 27.260 |
| | | HF-HC Diet+1XCO | -3.5100 | 13.5322 | .797 | -31.146 | 24.126 |
| | | HF-HC Diet+1XOryzanol | 8.4400 | 13.5322 | .538 | -19.196 | 36.076 |
| | HF-HC Diet+1XCO | CONTROL | 30.3167* | 13.5322 | .033 | 2.680 | 57.953 |
| | | HF-HC Diet | -1.1167 | 13.5322 | .935 | -28.753 | 26.520 |
| | | HF-HC Diet+1XID Oryzanol | 3.1333 | 13.5322 | .818 | -24.503 | 30.770 |
| | | HF-HC Diet+2XID Oryzanol | 3.5100 | 13.5322 | .797 | -24.126 | 31.146 |
| | | HF-HC Diet+1XOryzanol | 11.9500 | 13.5322 | .384 | -15.686 | 39.586 |
| | HF-HC Diet+1XOryzanol | CONTROL | 18.3667 | 13.5322 | .185 | -9.270 | 46.003 |
| | | HF-HC Diet | -13.0667 | 13.5322 | .342 | -40.703 | 14.570 |
| | | HF-HC Diet+1XID Oryzanol | -8.8167 | 13.5322 | .520 | -36.453 | 18.820 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+2XID Oryzanol | -8.4400 | 13.5322 | .538 | -36.076 | 19.196 |
| | | HF-HC Diet+1XCO | -11.9500 | 13.5322 | .384 | -39.586 | 15.686 |
| TRI | CONTROL | HF-HC Diet | -99.1667* | 30.1340 | .003 | -160.709 | -37.625 |
| | | HF-HC Diet+1XID Oryzanol | -105.4333* | 30.1340 | .001 | -166.975 | -43.891 |
| | | HF-HC Diet+2XID Oryzanol | -74.1333* | 30.1340 | .020 | -135.675 | -12.591 |
| | | HF-HC Diet+1XCO | -106.7167* | 30.1340 | .001 | -168.259 | -45.175 |
| | | HF-HC Diet+1XOryzanol | -102.6000* | 30.1340 | .002 | -164.142 | -41.058 |
| | HF-HC Diet | CONTROL | 99.1667* | 30.1340 | .003 | 37.625 | 160.709 |
| | | HF-HC Diet+1XID Oryzanol | -6.2667 | 30.1340 | .837 | -67.809 | 55.275 |
| | | HF-HC Diet+2XID Oryzanol | 25.0333 | 30.1340 | .413 | -36.509 | 86.575 |
| | | HF-HC Diet+1XCO | -7.5500 | 30.1340 | .804 | -69.092 | 53.992 |
| | | HF-HC Diet+1XOryzanol | -3.4333 | 30.1340 | .910 | -64.975 | 58.109 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 105.4333* | 30.1340 | .001 | 43.891 | 166.975 |
| | | HF-HC Diet | 6.2667 | 30.1340 | .837 | -55.275 | 67.809 |
| | | HF-HC Diet+2XID Oryzanol | 31.3000 | 30.1340 | .307 | -30.242 | 92.842 |
| | | HF-HC Diet+1XCO | -1.2833 | 30.1340 | .966 | -62.825 | 60.259 |
| | | HF-HC Diet+1XOryzanol | 2.8333 | 30.1340 | .926 | -58.709 | 64.375 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 74.1333* | 30.1340 | .020 | 12.591 | 135.675 |
| | | HF-HC Diet | -25.0333 | 30.1340 | .413 | -86.575 | 36.509 |
| | | HF-HC Diet+1XID Oryzanol | -31.3000 | 30.1340 | .307 | -92.842 | 30.242 |
| | | HF-HC Diet+1XCO | -32.5833 | 30.1340 | .288 | -94.125 | 28.959 |
| | | HF-HC Diet+1XOryzanol | -28.4667 | 30.1340 | .352 | -90.009 | 33.075 |
| | HF-HC Diet+1XCO | CONTROL | 106.7167* | 30.1340 | .001 | 45.175 | 168.259 |
| | | HF-HC Diet | 7.5500 | 30.1340 | .804 | -53.992 | 69.092 |
| | | HF-HC Diet+1XID Oryzanol | 1.2833 | 30.1340 | .966 | -60.259 | 62.825 |
| | | HF-HC Diet+2XID Oryzanol | 32.5833 | 30.1340 | .288 | -28.959 | 94.125 |
| | | HF-HC Diet+1XOryzanol | 4.1167 | 30.1340 | .892 | -57.425 | 65.659 |
| | HF-HC Diet+1XOryzanol | CONTROL | 102.6000* | 30.1340 | .002 | 41.058 | 164.142 |
| | | HF-HC Diet | 3.4333 | 30.1340 | .910 | -58.109 | 64.975 |
| | | HF-HC Diet+1XID Oryzanol | -2.8333 | 30.1340 | .926 | -64.375 | 58.709 |
| | | HF-HC Diet+2XID Oryzanol | 28.4667 | 30.1340 | .352 | -33.075 | 90.009 |
| | | HF-HC Diet+1XCO | -4.1167 | 30.1340 | .892 | -65.659 | 57.425 |
| HDL | CONTROL | HF-HC Diet | -21.2833* | 6.8198 | .004 | -35.211 | -7.356 |
| | | HF-HC Diet+1XID Oryzanol | -8.4833 | 6.8198 | .223 | -22.411 | 5.444 |
| | | HF-HC Diet+2XID Oryzanol | -13.4833 | 6.8198 | .057 | -27.411 | .444 |
| | | HF-HC Diet+1XCO | -12.1500 | 6.8198 | .085 | -26.078 | 1.778 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XOryzanol | -6.6333 | 6.8198 | .338 | -20.561 | 7.294 |
| | HF-HC Diet | CONTROL | 21.2833* | 6.8198 | .004 | 7.356 | 35.211 |
| | | HF-HC Diet+1XID Oryzanol | 12.8000 | 6.8198 | .070 | -1.128 | 26.728 |
| | | HF-HC Diet+2XID Oryzanol | 7.8000 | 6.8198 | .262 | -6.128 | 21.728 |
| | | HF-HC Diet+1XCO | 9.1333 | 6.8198 | .191 | -4.794 | 23.061 |
| | | HF-HC Diet+1XOryzanol | 14.6500* | 6.8198 | .040 | .722 | 28.578 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 8.4833 | 6.8198 | .223 | -5.444 | 22.411 |
| | | HF-HC Diet | -12.8000 | 6.8198 | .070 | -26.728 | 1.128 |
| | | HF-HC Diet+2XID Oryzanol | -5.0000 | 6.8198 | .469 | -18.928 | 8.928 |
| | | HF-HC Diet+1XCO | -3.6667 | 6.8198 | .595 | -17.594 | 10.261 |
| | | HF-HC Diet+1XOryzanol | 1.8500 | 6.8198 | .788 | -12.078 | 15.778 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 13.4833 | 6.8198 | .057 | -.444 | 27.411 |
| | | HF-HC Diet | -7.8000 | 6.8198 | .262 | -21.728 | 6.128 |
| | | HF-HC Diet+1XID Oryzanol | 5.0000 | 6.8198 | .469 | -8.928 | 18.928 |
| | | HF-HC Diet+1XCO | 1.3333 | 6.8198 | .846 | -12.594 | 15.261 |
| | | HF-HC Diet+1XOryzanol | 6.8500 | 6.8198 | .323 | -7.078 | 20.778 |
| | HF-HC Diet+1XCO | CONTROL | 12.1500 | 6.8198 | .085 | -1.778 | 26.078 |
| | | HF-HC Diet | -9.1333 | 6.8198 | .191 | -23.061 | 4.794 |
| | | HF-HC Diet+1XID Oryzanol | 3.6667 | 6.8198 | .595 | -10.261 | 17.594 |
| | | HF-HC Diet+2XID Oryzanol | -1.3333 | 6.8198 | .846 | -15.261 | 12.594 |
| | | HF-HC Diet+1XOryzanol | 5.5167 | 6.8198 | .425 | -8.411 | 19.444 |
| | HF-HC Diet+1XOryzanol | CONTROL | 6.6333 | 6.8198 | .338 | -7.294 | 20.561 |
| | | HF-HC Diet | -14.6500* | 6.8198 | .040 | -28.578 | -.722 |
| | | HF-HC Diet+1XID Oryzanol | -1.8500 | 6.8198 | .788 | -15.778 | 12.078 |
| | | HF-HC Diet+2XID Oryzanol | -6.8500 | 6.8198 | .323 | -20.778 | 7.078 |
| | | HF-HC Diet+1XCO | -5.5167 | 6.8198 | .425 | -19.444 | 8.411 |
| LDL | CONTROL | HF-HC Diet | -4.8969 | 3.6888 | .194 | -12.431 | 2.637 |
| | | HF-HC Diet+1XID Oryzanol | -1.6108 | 3.6888 | .665 | -9.144 | 5.923 |
| | | HF-HC Diet+2XID Oryzanol | -3.6727 | 3.6888 | .327 | -11.206 | 3.861 |
| | | HF-HC Diet+1XCO | -4.1237 | 3.6888 | .272 | -11.657 | 3.410 |
| | | HF-HC Diet+1XOryzanol | -.9021 | 3.6888 | .808 | -8.436 | 6.632 |
| | HF-HC Diet | CONTROL | 4.8969 | 3.6888 | .194 | -2.637 | 12.431 |
| | | HF-HC Diet+1XID Oryzanol | 3.2861 | 3.6888 | .380 | -4.247 | 10.820 |
| | | HF-HC Diet+2XID Oryzanol | 1.2242 | 3.6888 | .742 | -6.309 | 8.758 |
| | | HF-HC Diet+1XCO | .7732 | 3.6888 | .835 | -6.760 | 8.307 |
| | | HF-HC | 3.9949 | 3.6888 | .287 | -3.539 | 11.528 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Diet+1XOryzanol | | | | | |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 1.6108 | 3.6888 | .665 | -5.923 | 9.144 |
| | | HF-HC Diet | -3.2861 | 3.6888 | .380 | -10.820 | 4.247 |
| | | HF-HC Diet+2XID Oryzanol | -2.0619 | 3.6888 | .580 | -9.595 | 5.472 |
| | | HF-HC Diet+1XCO | -2.5129 | 3.6888 | .501 | -10.046 | 5.021 |
| | | HF-HC Diet+1XOryzanol | .7088 | 3.6888 | .849 | -6.825 | 8.242 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 3.6727 | 3.6888 | .327 | -3.861 | 11.206 |
| | | HF-HC Diet | -1.2242 | 3.6888 | .742 | -8.758 | 6.309 |
| | | HF-HC Diet+1XID Oryzanol | 2.0619 | 3.6888 | .580 | -5.472 | 9.595 |
| | | HF-HC Diet+1XCO | -.4510 | 3.6888 | .904 | -7.985 | 7.083 |
| | | HF-HC Diet+1XOryzanol | 2.7706 | 3.6888 | .458 | -4.763 | 10.304 |
| | HF-HC Diet+1XCO | CONTROL | 4.1237 | 3.6888 | .272 | -3.410 | 11.657 |
| | | HF-HC Diet | -.7732 | 3.6888 | .835 | -8.307 | 6.760 |
| | | HF-HC Diet+1XID Oryzanol | 2.5129 | 3.6888 | .501 | -5.021 | 10.046 |
| | | HF-HC Diet+2XID Oryzanol | .4510 | 3.6888 | .904 | -7.083 | 7.985 |
| | | HF-HC Diet+1XOryzanol | 3.2217 | 3.6888 | .389 | -4.312 | 10.755 |
| | HF-HC Diet+1XOryzanol | CONTROL | .9021 | 3.6888 | .808 | -6.632 | 8.436 |
| | | HF-HC Diet | -3.9949 | 3.6888 | .287 | -11.528 | 3.539 |
| | | HF-HC Diet+1XID Oryzanol | -.7088 | 3.6888 | .849 | -8.242 | 6.825 |
| | | HF-HC Diet+2XID Oryzanol | -2.7706 | 3.6888 | .458 | -10.304 | 4.763 |
| | | HF-HC Diet+1XCO | -3.2217 | 3.6888 | .389 | -10.755 | 4.312 |
| AST | CONTROL | HF-HC Diet | 7.9000 | 12.5182 | .533 | -17.665 | 33.465 |
| | | HF-HC Diet+1XID Oryzanol | 2.8000 | 12.5182 | .825 | -22.765 | 28.365 |
| | | HF-HC Diet+2XID Oryzanol | 12.1333 | 12.5182 | .340 | -13.432 | 37.699 |
| | | HF-HC Diet+1XCO | 3.6167 | 12.5182 | .775 | -21.949 | 29.182 |
| | | HF-HC Diet+1XOryzanol | 24.2167 | 12.5182 | .063 | -1.349 | 49.782 |
| | HF-HC Diet | CONTROL | -7.9000 | 12.5182 | .533 | -33.465 | 17.665 |
| | | HF-HC Diet+1XID Oryzanol | -5.1000 | 12.5182 | .687 | -30.665 | 20.465 |
| | | HF-HC Diet+2XID Oryzanol | 4.2333 | 12.5182 | .738 | -21.332 | 29.799 |
| | | HF-HC Diet+1XCO | -4.2833 | 12.5182 | .735 | -29.849 | 21.282 |
| | | HF-HC Diet+1XOryzanol | 16.3167 | 12.5182 | .202 | -9.249 | 41.882 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | -2.8000 | 12.5182 | .825 | -28.365 | 22.765 |
| | | HF-HC Diet | 5.1000 | 12.5182 | .687 | -20.465 | 30.665 |
| | | HF-HC Diet+2XID Oryzanol | 9.3333 | 12.5182 | .462 | -16.232 | 34.899 |
| | | HF-HC Diet+1XCO | .8167 | 12.5182 | .948 | -24.749 | 26.382 |
| | | HF-HC Diet+1XOryzanol | 21.4167 | 12.5182 | .097 | -4.149 | 46.982 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HF-HC Diet+2XID Oryzanol | CONTROL | -12.1333 | 12.5182 | .340 | -37.699 | 13.432 |
| | | HF-HC Diet | -4.2333 | 12.5182 | .738 | -29.799 | 21.332 |
| | | HF-HC Diet+1XID Oryzanol | -9.3333 | 12.5182 | .462 | -34.899 | 16.232 |
| | | HF-HC Diet+1XCO | -8.5167 | 12.5182 | .502 | -34.082 | 17.049 |
| | | HF-HC Diet+1XOryzanol | 12.0833 | 12.5182 | .342 | -13.482 | 37.649 |
| | HF-HC Diet+1XCO | CONTROL | -3.6167 | 12.5182 | .775 | -29.182 | 21.949 |
| | | HF-HC Diet | 4.2833 | 12.5182 | .735 | -21.282 | 29.849 |
| | | HF-HC Diet+1XID Oryzanol | -.8167 | 12.5182 | .948 | -26.382 | 24.749 |
| | | HF-HC Diet+2XID Oryzanol | 8.5167 | 12.5182 | .502 | -17.049 | 34.082 |
| | | HF-HC Diet+1XOryzanol | 20.6000 | 12.5182 | .110 | -4.965 | 46.165 |
| | HF-HC Diet+1XOryzanol | CONTROL | -24.2167 | 12.5182 | .063 | -49.782 | 1.349 |
| | | HF-HC Diet | -16.3167 | 12.5182 | .202 | -41.882 | 9.249 |
| | | HF-HC Diet+1XID Oryzanol | -21.4167 | 12.5182 | .097 | -46.982 | 4.149 |
| | | HF-HC Diet+2XID Oryzanol | -12.0833 | 12.5182 | .342 | -37.649 | 13.482 |
| | | HF-HC Diet+1XCO | -20.6000 | 12.5182 | .110 | -46.165 | 4.965 |
| ALT | CONTROL | HF-HC Diet | -6.0167 | 10.5421 | .572 | -27.546 | 15.513 |
| | | HF-HC Diet+1XID Oryzanol | -10.2333 | 10.5421 | .339 | -31.763 | 11.296 |
| | | HF-HC Diet+2XID Oryzanol | -1.8167 | 10.5421 | .864 | -23.346 | 19.713 |
| | | HF-HC Diet+1XCO | 5.6667 | 10.5421 | .595 | -15.863 | 27.196 |
| | | HF-HC Diet+1XOryzanol | 8.2500 | 10.5421 | .440 | -13.280 | 29.780 |
| | HF-HC Diet | CONTROL | 6.0167 | 10.5421 | .572 | -15.513 | 27.546 |
| | | HF-HC Diet+1XID Oryzanol | -4.2167 | 10.5421 | .692 | -25.746 | 17.313 |
| | | HF-HC Diet+2XID Oryzanol | 4.2000 | 10.5421 | .693 | -17.330 | 25.730 |
| | | HF-HC Diet+1XCO | 11.6833 | 10.5421 | .277 | -9.846 | 33.213 |
| | | HF-HC Diet+1XOryzanol | 14.2667 | 10.5421 | .186 | -7.263 | 35.796 |
| | HF-HC Diet+1XID Oryzanol | CONTROL | 10.2333 | 10.5421 | .339 | -11.296 | 31.763 |
| | | HF-HC Diet | 4.2167 | 10.5421 | .692 | -17.313 | 25.746 |
| | | HF-HC Diet+2XID Oryzanol | 8.4167 | 10.5421 | .431 | -13.113 | 29.946 |
| | | HF-HC Diet+1XCO | 15.9000 | 10.5421 | .142 | -5.630 | 37.430 |
| | | HF-HC Diet+1XOryzanol | 18.4833 | 10.5421 | .090 | -3.046 | 40.013 |
| | HF-HC Diet+2XID Oryzanol | CONTROL | 1.8167 | 10.5421 | .864 | -19.713 | 23.346 |
| | | HF-HC Diet | -4.2000 | 10.5421 | .693 | -25.730 | 17.330 |
| | | HF-HC Diet+1XID Oryzanol | -8.4167 | 10.5421 | .431 | -29.946 | 13.113 |
| | | HF-HC Diet+1XCO | 7.4833 | 10.5421 | .483 | -14.046 | 29.013 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | HF-HC Diet+1XCO | HF-HC Diet+1XOryzanol | 10.0667 | 10.5421 | .347 | -11.463 | 31.596 |
| | | CONTROL | -5.6667 | 10.5421 | .595 | -27.196 | 15.863 |
| | | HF-HC Diet | -11.6833 | 10.5421 | .277 | -33.213 | 9.846 |
| | | HF-HC Diet+1XID Oryzanol | -15.9000 | 10.5421 | .142 | -37.430 | 5.630 |
| | | HF-HC Diet+2XID Oryzanol | -7.4833 | 10.5421 | .483 | -29.013 | 14.046 |
| | | HF-HC Diet+1XOryzanol | 2.5833 | 10.5421 | .808 | -18.946 | 24.113 |
| | HF-HC Diet+1XOryzanol | CONTROL | -8.2500 | 10.5421 | .440 | -29.780 | 13.280 |
| | | HF-HC Diet | -14.2667 | 10.5421 | .186 | -35.796 | 7.263 |
| | | HF-HC Diet+1XID Oryzanol | -18.4833 | 10.5421 | .090 | -40.013 | 3.046 |
| | | HF-HC Diet+2XID Oryzanol | -10.0667 | 10.5421 | .347 | -31.596 | 11.463 |
| | | HF-HC Diet+1XCO | -2.5833 | 10.5421 | .808 | -24.113 | 18.946 |

*. The mean difference is significant at the 0.05 level.

a. Day of Exposure = 43rd day of Oryzanol exposure

## Day of Exposure = 43rd day of Oryzanol exposure
## Kruskal-Wallis Test

**Ranks[a]**

| Test group | | N | Mean Rank |
|---|---|---|---|
| HDL | CONTROL | 6 | 8.50 |
| | HF-HC Diet | 6 | 26.75 |
| | HF-HC Diet+1XID Oryzanol | 6 | 17.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 20.83 |
| | HF-HC Diet+1XCO | 6 | 21.17 |
| | HF-HC Diet+1XOryzanol | 6 | 16.25 |
| | Total | 36 | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b,c]**

| | HDL |
|---|---|
| Chi-Square | 10.092 |
| df | 5 |
| Asymp. Sig. | .073 |

a. Day of Exposure = 43rd day of Oryzanol exposure

b. Kruskal Wallis Test

c. Grouping Variable: Test group

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 3.67 | 22.00 |
| | HF-HC Diet | 6 | 9.33 | 56.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 1.000 |
| Wilcoxon W | 22.000 |
| Z | -2.722 |
| Asymp. Sig. (2-tailed) | .006 |
| Exact Sig. [2*(1-tailed Sig.)] | .004[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 4.83 | 29.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 8.17 | 49.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 8.000 |
| Wilcoxon W | 29.000 |
| Z | -1.601 |
| Asymp. Sig. (2-tailed) | .109 |
| Exact Sig. [2*(1-tailed Sig.)] | .132[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 5.00 | 30.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 8.00 | 48.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 9.000 |
| Wilcoxon W | 30.000 |
| Z | -1.441 |
| Asymp. Sig. (2-tailed) | .150 |
| Exact Sig. [2*(1-tailed Sig.)] | .180[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure

b. Grouping Variable: Test group

c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 3.83 | 23.00 |
| | HF-HC Diet+1XCO | 6 | 9.17 | 55.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 2.000 |
| Wilcoxon W | 23.000 |
| Z | -2.562 |
| Asymp. Sig. (2-tailed) | .010 |
| Exact Sig. [2*(1-tailed Sig.)] | .009[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure

b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | CONTROL | 6 | 5.17 | 31.00 |
| | HF-HC Diet+1XOryzanol | 6 | 7.83 | 47.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 10.000 |
| Wilcoxon W | 31.000 |
| Z | -1.281 |
| Asymp. Sig. (2-tailed) | .200 |
| Exact Sig. [2*(1-tailed Sig.)] | .240[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet | 6 | 8.00 | 48.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 5.00 | 30.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 9.000 |
| Wilcoxon W | 30.000 |
| Z | -1.441 |
| Asymp. Sig. (2-tailed) | .150 |
| Exact Sig. [2*(1-tailed Sig.)] | .180[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure

b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet | 6 | 7.50 | 45.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 12.000 |
| Wilcoxon W | 33.000 |
| Z | -.961 |
| Asymp. Sig. (2-tailed) | .337 |
| Exact Sig. [2*(1-tailed Sig.)] | .394[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet | 6 | 7.83 | 47.00 |
| | HF-HC Diet+1XCO | 6 | 5.17 | 31.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 10.000 |
| Wilcoxon W | 31.000 |
| Z | -1.281 |
| Asymp. Sig. (2-tailed) | .200 |
| Exact Sig. [2*(1-tailed Sig.)] | .240[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet | 6 | 8.08 | 48.50 |
| | HF-HC Diet+1XOryzanol | 6 | 4.92 | 29.50 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 8.500 |
| Wilcoxon W | 29.500 |
| Z | -1.524 |
| Asymp. Sig. (2-tailed) | .128 |
| Exact Sig. [2*(1-tailed Sig.)] | .132[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 5.83 | 35.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 7.17 | 43.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 14.000 |
| Wilcoxon W | 35.000 |
| Z | -.641 |
| Asymp. Sig. (2-tailed) | .522 |

| | |
|---|---|
| Exact Sig. [2*(1-tailed Sig.)] | .589[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 6.00 | 36.00 |
| | HF-HC Diet+1XCO | 6 | 7.00 | 42.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 15.000 |
| Wilcoxon W | 36.000 |
| Z | -.480 |
| Asymp. Sig. (2-tailed) | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+1XID Oryzanol | 6 | 6.50 | 39.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.50 | 39.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 18.000 |
| Wilcoxon W | 39.000 |
| Z | 0.000 |
| Asymp. Sig. (2-tailed) | 1.000 |

| | |
|---|---|
| Exact Sig. [2*(1-tailed Sig.)] | 1.000[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+2XID Oryzanol | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XCO | 6 | 6.33 | 38.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 17.000 |
| Wilcoxon W | 38.000 |
| Z | -.160 |
| Asymp. Sig. (2-tailed) | .873 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Day of Exposure = 43rd day of Oryzanol exposure
## Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+2XID Oryzanol | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 12.000 |
| Wilcoxon W | 33.000 |
| Z | -.961 |

| | |
|---|---|
| Asymp. Sig. (2-tailed) | .337 |
| Exact Sig. [2*(1-tailed Sig.)] | .394[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

### Day of Exposure = 43rd day of Oryzanol exposure
### Mann-Whitney Test

**Ranks[a]**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| HDL | HF-HC Diet+1XCO | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

a. Day of Exposure = 43rd day of Oryzanol exposure

**Test Statistics[a,b]**

| | HDL |
|---|---|
| Mann-Whitney U | 12.000 |
| Wilcoxon W | 33.000 |
| Z | -.961 |
| Asymp. Sig. (2-tailed) | .337 |
| Exact Sig. [2*(1-tailed Sig.)] | .394[c] |

a. Day of Exposure = 43rd day of Oryzanol exposure
b. Grouping Variable: Test group
c. Not corrected for ties.

## Organ weights

**Descriptives**

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Brain | Control | 6 | .71739 | .028830 | .011770 | .68714 | .74765 | .693 | .768 |
| | HF-HC Diet | 6 | .64705 | .122120 | .049855 | .51889 | .77520 | .447 | .754 |
| | HF-HC Diet+1XID Oryzanol | 6 | .67225 | .068452 | .027945 | .60042 | .74409 | .581 | .768 |
| | HF-HC Diet+2XID Oryzanol | 6 | .58189 | .066944 | .027330 | .51164 | .65215 | .489 | .669 |
| | HF-HC Diet+1XCO | 6 | .68960 | .097642 | .039862 | .58713 | .79207 | .539 | .805 |
| | HF-HC Diet+1XOryz | 6 | .64551 | .080775 | .032976 | .56074 | .73028 | .523 | .759 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | anol | | | | | | | | |
| | Total | 36 | .65895 | .087766 | .014628 | .62925 | .68865 | .447 | .805 |
| Heart | Control | 6 | .41618 | .107716 | .043975 | .30313 | .52922 | .257 | .512 |
| | HF-HC Diet | 6 | .42288 | .065653 | .026803 | .35399 | .49178 | .335 | .517 |
| | HF-HC Diet+1XID Oryzanol | 6 | .40043 | .034389 | .014039 | .36434 | .43652 | .348 | .452 |
| | HF-HC Diet+2XID Oryzanol | 6 | .42186 | .104554 | .042684 | .31213 | .53158 | .301 | .602 |
| | HF-HC Diet+1XCO | 6 | .45028 | .099858 | .040767 | .34548 | .55507 | .359 | .591 |
| | HF-HC Diet+1XOryzanol | 6 | .44051 | .096227 | .039284 | .33952 | .54149 | .300 | .553 |
| | Total | 36 | .42535 | .083792 | .013965 | .39700 | .45371 | .257 | .602 |
| Lungs | Control | 6 | .56436 | .082337 | .033614 | .47795 | .65076 | .485 | .704 |
| | HF-HC Diet | 6 | .53440 | .062557 | .025539 | .46875 | .60005 | .447 | .606 |
| | HF-HC Diet+1XID Oryzanol | 6 | .55924 | .080063 | .032685 | .47522 | .64326 | .419 | .641 |
| | HF-HC Diet+2XID Oryzanol | 6 | .56865 | .158133 | .064558 | .40270 | .73460 | .365 | .843 |
| | HF-HC Diet+1XCO | 6 | .52236 | .083727 | .034181 | .43450 | .61023 | .421 | .650 |
| | HF-HC Diet+1XOryzanol | 6 | .58488 | .105955 | .043256 | .47369 | .69608 | .492 | .779 |
| | Total | 36 | .55565 | .095283 | .015880 | .52341 | .58789 | .365 | .843 |
| Liver | Control | 6 | 3.57366 | .299998 | .122474 | 3.25883 | 3.88848 | 3.280 | 4.033 |
| | HF-HC Diet | 6 | 4.02151 | .304940 | .124491 | 3.70150 | 4.34153 | 3.695 | 4.416 |
| | HF-HC Diet+1XID Oryzanol | 6 | 3.88514 | .251227 | .102563 | 3.62150 | 4.14879 | 3.528 | 4.257 |
| | HF-HC Diet+2XID Oryzanol | 6 | 3.94672 | .318791 | .130146 | 3.61217 | 4.28127 | 3.424 | 4.281 |
| | HF-HC Diet+1XCO | 6 | 4.14533 | .231822 | .094641 | 3.90205 | 4.38861 | 3.805 | 4.312 |
| | HF-HC Diet+1XOryzanol | 6 | 3.97946 | .343589 | .140270 | 3.61888 | 4.34003 | 3.503 | 4.552 |
| | Total | 36 | 3.92530 | .325821 | .054304 | 3.81506 | 4.03554 | 3.280 | 4.552 |
| Spleen | Control | 6 | .09687 | .031735 | .012956 | .06357 | .13017 | .064 | .128 |
| | HF-HC Diet | 6 | .06540 | .006528 | .002665 | .05855 | .07225 | .056 | .075 |
| | HF-HC Diet+1XID Oryzanol | 6 | .08727 | .036453 | .014882 | .04901 | .12552 | .058 | .140 |
| | HF-HC Diet+2XID Oryzanol | 6 | .07487 | .022568 | .009214 | .05118 | .09855 | .061 | .120 |
| | HF-HC Diet+1XCO | 6 | .06458 | .004767 | .001946 | .05958 | .06958 | .059 | .070 |
| | HF-HC Diet+1XOryz | 6 | .06462 | .006759 | .002759 | .05752 | .07171 | .058 | .076 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | anol | | | | | | | | |
| | Total | 36 | .07560 | .024138 | .004023 | .06743 | .08377 | .056 | .140 |
| Kidney | Control | 6 | .70631 | .069104 | .028211 | .63379 | .77883 | .624 | .832 |
| | HF-HC Diet | 6 | .61981 | .262749 | .107267 | .34407 | .89555 | .112 | .810 |
| | HF-HC Diet+1XID Oryzanol | 6 | .74763 | .123191 | .050292 | .61835 | .87692 | .639 | .938 |
| | HF-HC Diet+2XID Oryzanol | 6 | .75837 | .153557 | .062689 | .59722 | .91952 | .609 | 1.048 |
| | HF-HC Diet+1XCO | 6 | .75487 | .091538 | .037370 | .65881 | .85094 | .650 | .872 |
| | HF-HC Diet+1XOryzanol | 6 | .80330 | .067418 | .027523 | .73255 | .87405 | .693 | .897 |
| | Total | 36 | .73172 | .146015 | .024336 | .68231 | .78112 | .112 | 1.048 |
| Testis | Control | 6 | 2.65837 | .509893 | .208163 | 2.12327 | 3.19347 | 2.241 | 3.662 |
| | HF-HC Diet | 6 | 2.62905 | .487087 | .198852 | 2.11789 | 3.14022 | 1.970 | 3.232 |
| | HF-HC Diet+1XID Oryzanol | 6 | 2.34375 | .772310 | .315294 | 1.53326 | 3.15424 | .804 | 2.931 |
| | HF-HC Diet+2XID Oryzanol | 6 | 2.76756 | .731848 | .298776 | 1.99953 | 3.53559 | 2.229 | 4.193 |
| | HF-HC Diet+1XCO | 6 | 2.95972 | .690685 | .281971 | 2.23489 | 3.68455 | 2.388 | 4.253 |
| | HF-HC Diet+1XOryzanol | 6 | 3.15399 | .467443 | .190833 | 2.66344 | 3.64454 | 2.578 | 3.749 |
| | Total | 36 | 2.75207 | .632400 | .105400 | 2.53810 | 2.96605 | .804 | 4.253 |

**Test of Homogeneity of Variances**

| | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|
| Brain | 2.099 | 5 | 30 | .093 |
| Heart | 1.735 | 5 | 30 | .157 |
| Lungs | .587 | 5 | 30 | .710 |
| Liver | .164 | 5 | 30 | .974 |
| Spleen | 12.663 | 5 | 30 | .000 |
| Kidney | 1.660 | 5 | 30 | .175 |
| Testis | .208 | 5 | 30 | .957 |

**ANOVA**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Brain | Between Groups | .065 | 5 | .013 | 1.897 | .125 |
| | Within Groups | .205 | 30 | .007 | | |
| | Total | .270 | 35 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Heart | Between Groups | .009 | 5 | .002 | .240 | .942 |
| | Within Groups | .236 | 30 | .008 | | |
| | Total | .246 | 35 | | | |
| Lungs | Between Groups | .016 | 5 | .003 | .319 | .898 |
| | Within Groups | .302 | 30 | .010 | | |
| | Total | .318 | 35 | | | |
| Liver | Between Groups | 1.118 | 5 | .224 | 2.582 | .047 |
| | Within Groups | 2.598 | 30 | .087 | | |
| | Total | 3.716 | 35 | | | |
| Spleen | Between Groups | .006 | 5 | .001 | 2.278 | .072 |
| | Within Groups | .015 | 30 | .000 | | |
| | Total | .020 | 35 | | | |
| Kidney | Between Groups | .119 | 5 | .024 | 1.136 | .363 |
| | Within Groups | .627 | 30 | .021 | | |
| | Total | .746 | 35 | | | |
| Testis | Between Groups | 2.373 | 5 | .475 | 1.225 | .322 |
| | Within Groups | 11.624 | 30 | .387 | | |
| | Total | 13.998 | 35 | | | |

**Multiple Comparisons**

LSD

| Dependent Variable | | | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Brain | Control | HF-HC Diet | .070346 | .047709 | .151 | -.02709 | .16778 |
| | | HF-HC Diet+1XID Oryzanol | .045137 | .047709 | .352 | -.05230 | .14257 |
| | | HF-HC Diet+2XID Oryzanol | .135497* | .047709 | .008 | .03806 | .23293 |
| | | HF-HC Diet+1XCO | .027787 | .047709 | .565 | -.06965 | .12522 |
| | | HF-HC Diet+1XOryzanol | .071881 | .047709 | .142 | -.02555 | .16932 |
| | HF-HC Diet | Control | -.070346 | .047709 | .151 | -.16778 | .02709 |
| | | HF-HC Diet+1XID Oryzanol | -.025208 | .047709 | .601 | -.12264 | .07223 |
| | | HF-HC Diet+2XID Oryzanol | .065151 | .047709 | .182 | -.03228 | .16259 |
| | | HF-HC Diet+1XCO | -.042559 | .047709 | .379 | -.13999 | .05488 |
| | | HF-HC Diet+1XOryzanol | .001535 | .047709 | .975 | -.09590 | .09897 |
| | HF-HC Diet+1XID Oryzanol | Control | -.045137 | .047709 | .352 | -.14257 | .05230 |
| | | HF-HC Diet | .025208 | .047709 | .601 | -.07223 | .12264 |
| | | HF-HC Diet+2XID Oryzanol | .090359 | .047709 | .068 | -.00707 | .18779 |
| | | HF-HC Diet+1XCO | -.017350 | .047709 | .719 | -.11478 | .08008 |
| | | HF-HC Diet+1XOryzanol | .026744 | .047709 | .579 | -.07069 | .12418 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | HF-HC Diet+2XID Oryzanol | Control | -.135497* | .047709 | .008 | -.23293 | -.03806 |
| | | HF-HC Diet | -.065151 | .047709 | .182 | -.16259 | .03228 |
| | | HF-HC Diet+1XID Oryzanol | -.090359 | .047709 | .068 | -.18779 | .00707 |
| | | HF-HC Diet+1XCO | -.107710* | .047709 | .031 | -.20514 | -.01028 |
| | | HF-HC Diet+1XOryzanol | -.063616 | .047709 | .192 | -.16105 | .03382 |
| | HF-HC Diet+1XCO | Control | -.027787 | .047709 | .565 | -.12522 | .06965 |
| | | HF-HC Diet | .042559 | .047709 | .379 | -.05488 | .13999 |
| | | HF-HC Diet+1XID Oryzanol | .017350 | .047709 | .719 | -.08008 | .11478 |
| | | HF-HC Diet+2XID Oryzanol | .107710* | .047709 | .031 | .01028 | .20514 |
| | | HF-HC Diet+1XOryzanol | .044094 | .047709 | .363 | -.05334 | .14153 |
| | HF-HC Diet+1XOryzanol | Control | -.071881 | .047709 | .142 | -.16932 | .02555 |
| | | HF-HC Diet | -.001535 | .047709 | .975 | -.09897 | .09590 |
| | | HF-HC Diet+1XID Oryzanol | -.026744 | .047709 | .579 | -.12418 | .07069 |
| | | HF-HC Diet+2XID Oryzanol | .063616 | .047709 | .192 | -.03382 | .16105 |
| | | HF-HC Diet+1XCO | -.044094 | .047709 | .363 | -.14153 | .05334 |
| Heart | Control | HF-HC Diet | -.006708 | .051239 | .897 | -.11135 | .09794 |
| | | HF-HC Diet+1XID Oryzanol | .015747 | .051239 | .761 | -.08890 | .12039 |
| | | HF-HC Diet+2XID Oryzanol | -.005682 | .051239 | .912 | -.11033 | .09896 |
| | | HF-HC Diet+1XCO | -.034102 | .051239 | .511 | -.13875 | .07054 |
| | | HF-HC Diet+1XOryzanol | -.024331 | .051239 | .638 | -.12898 | .08031 |
| | HF-HC Diet | Control | .006708 | .051239 | .897 | -.09794 | .11135 |
| | | HF-HC Diet+1XID Oryzanol | .022455 | .051239 | .664 | -.08219 | .12710 |
| | | HF-HC Diet+2XID Oryzanol | .001026 | .051239 | .984 | -.10362 | .10567 |
| | | HF-HC Diet+1XCO | -.027394 | .051239 | .597 | -.13204 | .07725 |
| | | HF-HC Diet+1XOryzanol | -.017622 | .051239 | .733 | -.12227 | .08702 |
| | HF-HC Diet+1XID Oryzanol | Control | -.015747 | .051239 | .761 | -.12039 | .08890 |
| | | HF-HC Diet | -.022455 | .051239 | .664 | -.12710 | .08219 |
| | | HF-HC Diet+2XID Oryzanol | -.021429 | .051239 | .679 | -.12607 | .08322 |
| | | HF-HC Diet+1XCO | -.049849 | .051239 | .338 | -.15449 | .05480 |
| | | HF-HC Diet+1XOryzanol | -.040077 | .051239 | .440 | -.14472 | .06457 |
| | HF-HC Diet+2XID Oryzanol | Control | .005682 | .051239 | .912 | -.09896 | .11033 |
| | | HF-HC Diet | -.001026 | .051239 | .984 | -.10567 | .10362 |
| | | HF-HC Diet+1XID Oryzanol | .021429 | .051239 | .679 | -.08322 | .12607 |
| | | HF-HC Diet+1XCO | -.028421 | .051239 | .583 | -.13307 | .07622 |
| | | HF-HC Diet+1XOryzanol | -.018649 | .051239 | .718 | -.12329 | .08600 |
| | HF-HC Diet+1XCO | Control | .034102 | .051239 | .511 | -.07054 | .13875 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet | .027394 | .051239 | .597 | -.07725 | .13204 |
| | | HF-HC Diet+1XID Oryzanol | .049849 | .051239 | .338 | -.05480 | .15449 |
| | | HF-HC Diet+2XID Oryzanol | .028421 | .051239 | .583 | -.07622 | .13307 |
| | | HF-HC Diet+1XOryzanol | .009772 | .051239 | .850 | -.09487 | .11442 |
| | HF-HC Diet+1XOryzanol | Control | .024331 | .051239 | .638 | -.08031 | .12898 |
| | | HF-HC Diet | .017622 | .051239 | .733 | -.08702 | .12227 |
| | | HF-HC Diet+1XID Oryzanol | .040077 | .051239 | .440 | -.06457 | .14472 |
| | | HF-HC Diet+2XID Oryzanol | .018649 | .051239 | .718 | -.08600 | .12329 |
| | | HF-HC Diet+1XCO | -.009772 | .051239 | .850 | -.11442 | .09487 |
| Lungs | Control | HF-HC Diet | .029953 | .057901 | .609 | -.08830 | .14820 |
| | | HF-HC Diet+1XID Oryzanol | .005118 | .057901 | .930 | -.11313 | .12337 |
| | | HF-HC Diet+2XID Oryzanol | -.004297 | .057901 | .941 | -.12255 | .11395 |
| | | HF-HC Diet+1XCO | .041993 | .057901 | .474 | -.07626 | .16024 |
| | | HF-HC Diet+1XOryzanol | -.020528 | .057901 | .725 | -.13878 | .09772 |
| | HF-HC Diet | Control | -.029953 | .057901 | .609 | -.14820 | .08830 |
| | | HF-HC Diet+1XID Oryzanol | -.024835 | .057901 | .671 | -.14308 | .09342 |
| | | HF-HC Diet+2XID Oryzanol | -.034250 | .057901 | .559 | -.15250 | .08400 |
| | | HF-HC Diet+1XCO | .012040 | .057901 | .837 | -.10621 | .13029 |
| | | HF-HC Diet+1XOryzanol | -.050480 | .057901 | .390 | -.16873 | .06777 |
| | HF-HC Diet+1XID Oryzanol | Control | -.005118 | .057901 | .930 | -.12337 | .11313 |
| | | HF-HC Diet | .024835 | .057901 | .671 | -.09342 | .14308 |
| | | HF-HC Diet+2XID Oryzanol | -.009415 | .057901 | .872 | -.12767 | .10883 |
| | | HF-HC Diet+1XCO | .036875 | .057901 | .529 | -.08137 | .15512 |
| | | HF-HC Diet+1XOryzanol | -.025646 | .057901 | .661 | -.14390 | .09260 |
| | HF-HC Diet+2XID Oryzanol | Control | .004297 | .057901 | .941 | -.11395 | .12255 |
| | | HF-HC Diet | .034250 | .057901 | .559 | -.08400 | .15250 |
| | | HF-HC Diet+1XID Oryzanol | .009415 | .057901 | .872 | -.10883 | .12767 |
| | | HF-HC Diet+1XCO | .046290 | .057901 | .430 | -.07196 | .16454 |
| | | HF-HC Diet+1XOryzanol | -.016231 | .057901 | .781 | -.13448 | .10202 |
| | HF-HC Diet+1XCO | Control | -.041993 | .057901 | .474 | -.16024 | .07626 |
| | | HF-HC Diet | -.012040 | .057901 | .837 | -.13029 | .10621 |
| | | HF-HC Diet+1XID Oryzanol | -.036875 | .057901 | .529 | -.15512 | .08137 |
| | | HF-HC Diet+2XID Oryzanol | -.046290 | .057901 | .430 | -.16454 | .07196 |
| | | HF-HC Diet+1XOryzanol | -.062521 | .057901 | .289 | -.18077 | .05573 |
| | HF-HC Diet+1XOryzanol | Control | .020528 | .057901 | .725 | -.09772 | .13878 |
| | | HF-HC Diet | .050480 | .057901 | .390 | -.06777 | .16873 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XID Oryzanol | .025646 | .057901 | .661 | -.09260 | .14390 |
| | | HF-HC Diet+2XID Oryzanol | .016231 | .057901 | .781 | -.10202 | .13448 |
| | | HF-HC Diet+1XCO | .062521 | .057901 | .289 | -.05573 | .18077 |
| Liver | Control | HF-HC Diet | -.447856* | .169890 | .013 | -.79482 | -.10089 |
| | | HF-HC Diet+1XID Oryzanol | -.311488 | .169890 | .077 | -.65845 | .03547 |
| | | HF-HC Diet+2XID Oryzanol | -.373060* | .169890 | .036 | -.72002 | -.02610 |
| | | HF-HC Diet+1XCO | -.571673* | .169890 | .002 | -.91863 | -.22471 |
| | | HF-HC Diet+1XOryzanol | -.405801* | .169890 | .023 | -.75276 | -.05884 |
| | HF-HC Diet | Control | .447856* | .169890 | .013 | .10089 | .79482 |
| | | HF-HC Diet+1XID Oryzanol | .136367 | .169890 | .428 | -.21059 | .48333 |
| | | HF-HC Diet+2XID Oryzanol | .074796 | .169890 | .663 | -.27217 | .42176 |
| | | HF-HC Diet+1XCO | -.123817 | .169890 | .472 | -.47078 | .22314 |
| | | HF-HC Diet+1XOryzanol | .042055 | .169890 | .806 | -.30491 | .38902 |
| | HF-HC Diet+1XID Oryzanol | Control | .311488 | .169890 | .077 | -.03547 | .65845 |
| | | HF-HC Diet | -.136367 | .169890 | .428 | -.48333 | .21059 |
| | | HF-HC Diet+2XID Oryzanol | -.061572 | .169890 | .720 | -.40853 | .28539 |
| | | HF-HC Diet+1XCO | -.260184 | .169890 | .136 | -.60715 | .08678 |
| | | HF-HC Diet+1XOryzanol | -.094313 | .169890 | .583 | -.44127 | .25265 |
| | HF-HC Diet+2XID Oryzanol | Control | .373060* | .169890 | .036 | .02610 | .72002 |
| | | HF-HC Diet | -.074796 | .169890 | .663 | -.42176 | .27217 |
| | | HF-HC Diet+1XID Oryzanol | .061572 | .169890 | .720 | -.28539 | .40853 |
| | | HF-HC Diet+1XCO | -.198613 | .169890 | .252 | -.54557 | .14835 |
| | | HF-HC Diet+1XOryzanol | -.032741 | .169890 | .848 | -.37970 | .31422 |
| | HF-HC Diet+1XCO | Control | .571673* | .169890 | .002 | .22471 | .91863 |
| | | HF-HC Diet | .123817 | .169890 | .472 | -.22314 | .47078 |
| | | HF-HC Diet+1XID Oryzanol | .260184 | .169890 | .136 | -.08678 | .60715 |
| | | HF-HC Diet+2XID Oryzanol | .198613 | .169890 | .252 | -.14835 | .54557 |
| | | HF-HC Diet+1XOryzanol | .165872 | .169890 | .337 | -.18109 | .51283 |
| | HF-HC Diet+1XOryzanol | Control | .405801* | .169890 | .023 | .05884 | .75276 |
| | | HF-HC Diet | -.042055 | .169890 | .806 | -.38902 | .30491 |
| | | HF-HC Diet+1XID Oryzanol | .094313 | .169890 | .583 | -.25265 | .44127 |
| | | HF-HC Diet+2XID Oryzanol | .032741 | .169890 | .848 | -.31422 | .37970 |
| | | HF-HC Diet+1XCO | -.165872 | .169890 | .337 | -.51283 | .18109 |
| Spleen | Control | HF-HC Diet | .031472* | .012816 | .020 | .00530 | .05765 |
| | | HF-HC Diet+1XID Oryzanol | .009602 | .012816 | .460 | -.01657 | .03577 |
| | | HF-HC Diet+2XID | .022001 | .012816 | .096 | -.00417 | .04817 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Oryzanol | | | | | |
| | | HF-HC Diet+1XCO | .032287* | .012816 | .017 | .00611 | .05846 |
| | | HF-HC Diet+1XOryzanol | .032253* | .012816 | .017 | .00608 | .05843 |
| | HF-HC Diet | Control | -.031472* | .012816 | .020 | -.05765 | -.00530 |
| | | HF-HC Diet+1XID Oryzanol | -.021871 | .012816 | .098 | -.04804 | .00430 |
| | | HF-HC Diet+2XID Oryzanol | -.009471 | .012816 | .466 | -.03564 | .01670 |
| | | HF-HC Diet+1XCO | .000815 | .012816 | .950 | -.02536 | .02699 |
| | | HF-HC Diet+1XOryzanol | .000781 | .012816 | .952 | -.02539 | .02695 |
| | HF-HC Diet+1XID Oryzanol | Control | -.009602 | .012816 | .460 | -.03577 | .01657 |
| | | HF-HC Diet | .021871 | .012816 | .098 | -.00430 | .04804 |
| | | HF-HC Diet+2XID Oryzanol | .012399 | .012816 | .341 | -.01377 | .03857 |
| | | HF-HC Diet+1XCO | .022685 | .012816 | .087 | -.00349 | .04886 |
| | | HF-HC Diet+1XOryzanol | .022652 | .012816 | .087 | -.00352 | .04882 |
| | HF-HC Diet+2XID Oryzanol | Control | -.022001 | .012816 | .096 | -.04817 | .00417 |
| | | HF-HC Diet | .009471 | .012816 | .466 | -.01670 | .03564 |
| | | HF-HC Diet+1XID Oryzanol | -.012399 | .012816 | .341 | -.03857 | .01377 |
| | | HF-HC Diet+1XCO | .010286 | .012816 | .429 | -.01589 | .03646 |
| | | HF-HC Diet+1XOryzanol | .010253 | .012816 | .430 | -.01592 | .03643 |
| | HF-HC Diet+1XCO | Control | -.032287* | .012816 | .017 | -.05846 | -.00611 |
| | | HF-HC Diet | -.000815 | .012816 | .950 | -.02699 | .02536 |
| | | HF-HC Diet+1XID Oryzanol | -.022685 | .012816 | .087 | -.04886 | .00349 |
| | | HF-HC Diet+2XID Oryzanol | -.010286 | .012816 | .429 | -.03646 | .01589 |
| | | HF-HC Diet+1XOryzanol | -.000034 | .012816 | .998 | -.02621 | .02614 |
| | HF-HC Diet+1XOryzanol | Control | -.032253* | .012816 | .017 | -.05843 | -.00608 |
| | | HF-HC Diet | -.000781 | .012816 | .952 | -.02695 | .02539 |
| | | HF-HC Diet+1XID Oryzanol | -.022652 | .012816 | .087 | -.04882 | .00352 |
| | | HF-HC Diet+2XID Oryzanol | -.010253 | .012816 | .430 | -.03643 | .01592 |
| | | HF-HC Diet+1XCO | .000034 | .012816 | .998 | -.02614 | .02621 |
| Kidney | Control | HF-HC Diet | .086499 | .083497 | .309 | -.08403 | .25702 |
| | | HF-HC Diet+1XID Oryzanol | -.041324 | .083497 | .624 | -.21185 | .12920 |
| | | HF-HC Diet+2XID Oryzanol | -.052060 | .083497 | .538 | -.22258 | .11846 |
| | | HF-HC Diet+1XCO | -.048563 | .083497 | .565 | -.21909 | .12196 |
| | | HF-HC Diet+1XOryzanol | -.096990 | .083497 | .255 | -.26751 | .07353 |
| | HF-HC Diet | Control | -.086499 | .083497 | .309 | -.25702 | .08403 |
| | | HF-HC Diet+1XID Oryzanol | -.127822 | .083497 | .136 | -.29835 | .04270 |
| | | HF-HC Diet+2XID Oryzanol | -.138558 | .083497 | .107 | -.30908 | .03197 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XCO | -.135062 | .083497 | .116 | -.30559 | .03546 |
| | | HF-HC Diet+1XOryzanol | -.183488* | .083497 | .036 | -.35401 | -.01296 |
| | HF-HC Diet+1XID Oryzanol | Control | .041324 | .083497 | .624 | -.12920 | .21185 |
| | | HF-HC Diet | .127822 | .083497 | .136 | -.04270 | .29835 |
| | | HF-HC Diet+2XID Oryzanol | -.010736 | .083497 | .899 | -.18126 | .15979 |
| | | HF-HC Diet+1XCO | -.007240 | .083497 | .931 | -.17776 | .16328 |
| | | HF-HC Diet+1XOryzanol | -.055666 | .083497 | .510 | -.22619 | .11486 |
| | HF-HC Diet+2XID Oryzanol | Control | .052060 | .083497 | .538 | -.11846 | .22258 |
| | | HF-HC Diet | .138558 | .083497 | .107 | -.03197 | .30908 |
| | | HF-HC Diet+1XID Oryzanol | .010736 | .083497 | .899 | -.15979 | .18126 |
| | | HF-HC Diet+1XCO | .003496 | .083497 | .967 | -.16703 | .17402 |
| | | HF-HC Diet+1XOryzanol | -.044930 | .083497 | .594 | -.21545 | .12559 |
| | HF-HC Diet+1XCO | Control | .048563 | .083497 | .565 | -.12196 | .21909 |
| | | HF-HC Diet | .135062 | .083497 | .116 | -.03546 | .30559 |
| | | HF-HC Diet+1XID Oryzanol | .007240 | .083497 | .931 | -.16328 | .17776 |
| | | HF-HC Diet+2XID Oryzanol | -.003496 | .083497 | .967 | -.17402 | .16703 |
| | | HF-HC Diet+1XOryzanol | -.048426 | .083497 | .566 | -.21895 | .12210 |
| | HF-HC Diet+1XOryzanol | Control | .096990 | .083497 | .255 | -.07353 | .26751 |
| | | HF-HC Diet | .183488* | .083497 | .036 | .01296 | .35401 |
| | | HF-HC Diet+1XID Oryzanol | .055666 | .083497 | .510 | -.11486 | .22619 |
| | | HF-HC Diet+2XID Oryzanol | .044930 | .083497 | .594 | -.12559 | .21545 |
| | | HF-HC Diet+1XCO | .048426 | .083497 | .566 | -.12210 | .21895 |
| Testis | Control | HF-HC Diet | .029316 | .359387 | .936 | -.70465 | .76328 |
| | | HF-HC Diet+1XID Oryzanol | .314622 | .359387 | .388 | -.41934 | 1.04859 |
| | | HF-HC Diet+2XID Oryzanol | -.109190 | .359387 | .763 | -.84316 | .62478 |
| | | HF-HC Diet+1XCO | -.301353 | .359387 | .408 | -1.03532 | .43261 |
| | | HF-HC Diet+1XOryzanol | -.495624 | .359387 | .178 | -1.22959 | .23834 |
| | HF-HC Diet | Control | -.029316 | .359387 | .936 | -.76328 | .70465 |
| | | HF-HC Diet+1XID Oryzanol | .285306 | .359387 | .434 | -.44866 | 1.01927 |
| | | HF-HC Diet+2XID Oryzanol | -.138506 | .359387 | .703 | -.87247 | .59546 |
| | | HF-HC Diet+1XCO | -.330669 | .359387 | .365 | -1.06463 | .40330 |
| | | HF-HC Diet+1XOryzanol | -.524940 | .359387 | .155 | -1.25891 | .20903 |
| | HF-HC Diet+1XID Oryzanol | Control | -.314622 | .359387 | .388 | -1.04859 | .41934 |
| | | HF-HC Diet | -.285306 | .359387 | .434 | -1.01927 | .44866 |
| | | HF-HC Diet+2XID Oryzanol | -.423812 | .359387 | .248 | -1.15778 | .31015 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | HF-HC Diet+1XCO | -.615974 | .359387 | .097 | -1.34994 | .11799 |
| | | HF-HC Diet+1XOryzanol | -.810245* | .359387 | .032 | -1.54421 | -.07628 |
| | HF-HC Diet+2XID Oryzanol | Control | .109190 | .359387 | .763 | -.62478 | .84316 |
| | | HF-HC Diet | .138506 | .359387 | .703 | -.59546 | .87247 |
| | | HF-HC Diet+1XID Oryzanol | .423812 | .359387 | .248 | -.31015 | 1.15778 |
| | | HF-HC Diet+1XCO | -.192163 | .359387 | .597 | -.92613 | .54180 |
| | | HF-HC Diet+1XOryzanol | -.386434 | .359387 | .291 | -1.12040 | .34753 |
| | HF-HC Diet+1XCO | Control | .301353 | .359387 | .408 | -.43261 | 1.03532 |
| | | HF-HC Diet | .330669 | .359387 | .365 | -.40330 | 1.06463 |
| | | HF-HC Diet+1XID Oryzanol | .615974 | .359387 | .097 | -.11799 | 1.34994 |
| | | HF-HC Diet+2XID Oryzanol | .192163 | .359387 | .597 | -.54180 | .92613 |
| | | HF-HC Diet+1XOryzanol | -.194271 | .359387 | .593 | -.92824 | .53969 |
| | HF-HC Diet+1XOryzanol | Control | .495624 | .359387 | .178 | -.23834 | 1.22959 |
| | | HF-HC Diet | .524940 | .359387 | .155 | -.20903 | 1.25891 |
| | | HF-HC Diet+1XID Oryzanol | .810245* | .359387 | .032 | .07628 | 1.54421 |
| | | HF-HC Diet+2XID Oryzanol | .386434 | .359387 | .291 | -.34753 | 1.12040 |
| | | HF-HC Diet+1XCO | .194271 | .359387 | .593 | -.53969 | .92824 |

*. The mean difference is significant at the 0.05 level.

**Kruskal-Wallis Test**

**Ranks**

| Test group | | N | Mean Rank |
|---|---|---|---|
| Spleen | Control | 6 | 27.50 |
| | HF-HC Diet | 6 | 15.92 |
| | HF-HC Diet+1XID Oryzanol | 6 | 20.17 |
| | HF-HC Diet+2XID Oryzanol | 6 | 19.08 |
| | HF-HC Diet+1XCO | 6 | 14.67 |
| | HF-HC Diet+1XOryzanol | 6 | 13.67 |
| | Total | 36 | |

Test Statistics[a,b]

| | Spleen |
|---|---|
| Chi-Square | 6.966 |
| df | 5 |
| Asymp. Sig. | .223 |

a. Kruskal Wallis Test

b. Grouping Variable: Test group

**Mann-Whitney Test**

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | Control | 6 | 8.50 | 51.00 |
| | HF-HC Diet | 6 | 4.50 | 27.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 6.000 |
| Wilcoxon W | 27.000 |
| Z | -1.922 |
| Asymp. Sig. (2-tailed) | .055 |
| Exact Sig. [2*(1-tailed Sig.)] | .065[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | Control | 6 | 7.00 | 42.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 6.00 | 36.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 15.000 |
| Wilcoxon W | 36.000 |
| Z | -.480 |
| Asymp. Sig. (2-tailed) | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | N | Mean Rank | Sum of Ranks |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Spleen | Control | 6 | 8.33 | 50.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 4.67 | 28.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 7.000 |
| Wilcoxon W | 28.000 |
| Z | -1.761 |
| Asymp. Sig. (2-tailed) | .078 |
| Exact Sig. [2*(1-tailed Sig.)] | .093[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | Control | 6 | 8.83 | 53.00 |
| | HF-HC Diet+1XCO | 6 | 4.17 | 25.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 4.000 |
| Wilcoxon W | 25.000 |
| Z | -2.242 |
| Asymp. Sig. (2-tailed) | .025 |
| Exact Sig. [2*(1-tailed Sig.)] | .026[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | Control | 6 | 8.83 | 53.00 |
| | HF-HC Diet+1XOryzanol | 6 | 4.17 | 25.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 4.000 |
| Wilcoxon W | 25.000 |

| | |
|---|---|
| Z | -2.242 |
| Asymp. Sig. (2-tailed) | .025 |
| Exact Sig. [2*(1-tailed Sig.)] | .026[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet | 6 | 6.00 | 36.00 |
| | HF-HC Diet+1XID Oryzanol | 6 | 7.00 | 42.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 15.000 |
| Wilcoxon W | 36.000 |
| Z | -.480 |
| Asymp. Sig. (2-tailed) | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet | 6 | 5.92 | 35.50 |
| | HF-HC Diet+2XID Oryzanol | 6 | 7.08 | 42.50 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 14.500 |
| Wilcoxon W | 35.500 |
| Z | -.561 |
| Asymp. Sig. (2-tailed) | .575 |
| Exact Sig. [2*(1-tailed Sig.)] | .589[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet | 6 | 6.67 | 40.00 |
| | HF-HC Diet+1XCO | 6 | 6.33 | 38.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 17.000 |
| Wilcoxon W | 38.000 |
| Z | -.160 |
| Asymp. Sig. (2-tailed) | .873 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | Control | 6 | 8.83 | 53.00 |
| | HF-HC Diet+1XOryzanol | 6 | 4.17 | 25.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 4.000 |
| Wilcoxon W | 25.000 |
| Z | -2.242 |
| Asymp. Sig. (2-tailed) | .025 |
| Exact Sig. [2*(1-tailed Sig.)] | .026[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+1XID Oryzanol | 6 | 6.67 | 40.00 |
| | HF-HC Diet+2XID Oryzanol | 6 | 6.33 | 38.00 |

| | | | | |
|---|---|---|---|---|
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 17.000 |
| Wilcoxon W | 38.000 |
| Z | -.160 |
| Asymp. Sig. (2-tailed) | .873 |
| Exact Sig. [2*(1-tailed Sig.)] | .937[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+1XID Oryzanol | 6 | 7.00 | 42.00 |
| | HF-HC Diet+1XCO | 6 | 6.00 | 36.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 15.000 |
| Wilcoxon W | 36.000 |
| Z | -.480 |
| Asymp. Sig. (2-tailed) | .631 |
| Exact Sig. [2*(1-tailed Sig.)] | .699[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+1XID Oryzanol | 6 | 7.50 | 45.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.50 | 33.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 12.000 |
| Wilcoxon W | 33.000 |
| Z | -.961 |
| Asymp. Sig. (2-tailed) | .337 |

| | |
|---|---|
| Exact Sig. [2*(1-tailed Sig.)] | .394[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+2XID Oryzanol | 6 | 7.33 | 44.00 |
| | HF-HC Diet+1XCO | 6 | 5.67 | 34.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 13.000 |
| Wilcoxon W | 34.000 |
| Z | -.801 |
| Asymp. Sig. (2-tailed) | .423 |
| Exact Sig. [2*(1-tailed Sig.)] | .485[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+2XID Oryzanol | 6 | 7.67 | 46.00 |
| | HF-HC Diet+1XOryzanol | 6 | 5.33 | 32.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 11.000 |
| Wilcoxon W | 32.000 |
| Z | -1.121 |
| Asymp. Sig. (2-tailed) | .262 |
| Exact Sig. [2*(1-tailed Sig.)] | .310[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.

**Ranks**

| Test group | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Spleen | HF-HC Diet+1XCO | 6 | 6.50 | 39.00 |
| | HF-HC Diet+1XOryzanol | 6 | 6.50 | 39.00 |
| | Total | 12 | | |

**Test Statistics[a]**

| | Spleen |
|---|---|
| Mann-Whitney U | 18.000 |
| Wilcoxon W | 39.000 |
| Z | 0.000 |
| Asymp. Sig. (2-tailed) | 1.000 |
| Exact Sig. [2*(1-tailed Sig.)] | 1.000[b] |

a. Grouping Variable: Test group

b. Not corrected for ties.