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# Effect of Different Levels of Prebiotics TechnoMos on Carcass Characteristics of Broiler Chickens

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## ABSTRACT

This experiment was done to study the effects of prebiotic on broiler chickens carcass characteristics. The treatments which were used in this experiment were: 1st treatment that contained basic diet with 0.1% prebiotic TechnoMos (for starter, grower and finisher periods was considered fixed), 2nd treatment that contained basic diet with 0.15% prebiotic TechnoMos (for starter, grower and finisher periods was considered fixed), 3rd treatment that contained basic diet with 0.2% prebiotic TechnoMos (for starter, grower and finisher periods was considered fixed), 4th treatment that contained basic diet with 0.25% prebiotic TechnoMos (for starter, grower and finisher periods was considered fixed) and 5th treatment that contained basic diet with no prebiotic TechnoMos (control treatment). Analyze of the results showed that there is a significant difference between treatment in empty carcass percent, wing weight, wing percent, bach neck chine weight, back neck chine percent, gizzard weight, gizzard percent, crop weight, crop percent, proventriculus weight, proventriculus percent, liver weight, liver percent, spleen weight, spleen percent, abdominal fat weight, abdominal fat percent, jejunum weight, jejunum length, jejunum width, jejunum diagonal, duodenum width and Ileum width ($P<0.05$), but there is no significant difference between treatments in without feather carcass weight, full carcass weight, empty carcass weight, head weight, head percent, Breast meat weight, breast meat percent, femur meat weight, femur meat percent, neck weight, neck percent, pancreas weight, pancreas percent, lung weight, lung percent, heart weight, heart percent, kidney weight, kidney percent, Thymus weight, Thymus percent, brain weight, brain percent, bursa fabricius weight, bursa fabricius percent, duodenum weight, duodenum percent, Ileum weight, Ileum percent, Jejunum percent, colon weight, colon percent, cecum weight, cecum percent, duodenum length, Ileum length, colon length, cecum length, colon width, cecum width, duodenum diameter, Ileum diameter, colon diameter, and cecum diameter ($P>0.05$).

**KEY WORDS:** carcass, broiler, prebiotics, intestine, breast.

## 1. INTRODUCTION

Poultry breeding has an old history in the world. Considering the wide range of investments on this field and numerous people who perform in this industry and related areas, and by admission to the role and great importance of this industry in man's nutrition from long ago, here to wide spread researches have been done on various dimensions of poultry science and many researcher are trying to find new solutions to increase benefits and value added for this system (Shivazad and Seidavi, 2006).

Considering the increasing growth of poultry industry, especially broilers, the owners of this world's great and basic industry are looking for solution to produce proteins like white meat, in the least possible time and with low costs and the maximum growth in broiler chicks. One of the main goals in poultry breeding industry all around the world is to improve and increase the broiler chicks production factors. Today different breeding techniques and medicals and natural growth additives have been offered for this purpose (Zakeri et al., 2010).

Now days in order to stimulate growth, eliminate nutrition compound's shortage, Immunity system reinforcement and disease prevention, several additives are added to poultry nutrition (Rakhshan et al., 2010). Considering the spread of different kinds of additives in nutrition and significant increase in worldwide poultry productions, the huge amount of medicine and chemicals which threat environment and consumer's health can be easily estimated. Because of valuable role of this compounds in poultry production efficiency, in most cases usage of them is inevitable (Ghlyanchi Langroudi, 2004). Today growth stimulants have gained scientists and consumer's interest, thus usage of those additives which have desirable characteristics and are not harmful for health and environment got noteworthy (Botsoglu and Fletouris, 2001).

Prebiotics are indigestible nutrition's that influence effectively on birds health improvements via growth and activity of a limited number of bacteria species that aim the host health's improvement (Fuller, 2001). Prebiotics, as indigestible foods, include useful effects on host animal and do the growth incitement or activation of limited group of bacteria's, selectively (Gibson and Roberfroid, 1995).

These compounds have various structures that usually include sugars, yeasts and healthy molds which can play a key role in animals' health improvement. These compounds are as substances that other microorganisms and various tissues can use them to perform and gain energy; Among them fungus, yeasts and

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similar compounds like fructo oligosaccharides, Mannan oligosaccharides and glucan can be named which presented wide goals in bestial and poultry industries (Patterson and Burkholder, 2003).

Beta-1, 3-glucan is the main substance in cell membrane saccharomyces cerevisiae (Masihi, 2000). Beta-glucans can pass the mucous membrane of gut tissue cells and by incitement of macrophages as the first defense line, help to reinforce the Immunity system (Olson et al., 1996; Vassallo et al., 2001).

Mannan oligosaccharides are indigestible polysaccharide molecules which are derived from saccharomyces cerevisiae cell wall and about 0.45% of cell wall includes Mannose rest (Tizard et al., 1989). Mannan oligosaccharides antigenic and increases humeral Immunity against pathogen bacteria's (Ballou, 1970). Mannan oligosaccharides are extracted from yeast cell's surface and have a great tendency to bond bacteria's and compete with some of them to bond to juncture points in gut (Ofek et al., 1977). Although Mannan oligosaccharide's effect on gut's useful microorganisms are not fix and experiments reported inconsistent results (Spring et al., 2000).

It has been shown that adding Mannan oligosaccharide's to poultry diet causes weight increase and feed conversion ratio improvement (parks et al., 2001).

Therefore according to the studies, this research pattern is to study the effects of prebiotic TechnoMos, which is based on Mannan oligosaccharide's and Beta-1,3-glucan, on Ross 308 broiler chicks carcass characteristics, which is one of the most important kinds of broiler chicks in the world.

## 2. MATERIALS AND METHODS

**Time and position experiments**

This experiment was done on 2011 for 42 days in the research field of Islamic Azad University, Faculty of Agriculture science. At first preparation and disinfection steps were done.

**Salon Specifications**

The salon was divided in to 20 1.5×1 meter pens so that there would be enough space for ideal density. The treatments were paced in each pen in an absolutely random pattern. Six fans were improvised in the salon which five of them were on width and just one of them was on length. Also 5 windows were placed on the width of the salon which were used in this experiment according to the age and climate of salon to control the amount of dust and ventilation.

**Salon disinfecting**

Before starting the rearing period, aviculture salons enclosure was cleaned from dung and feather and other pollutant leftovers. All instruments like drinker and etc were exported from salon and transferred out of salon for washout and disinfection. By using high pressure water all zones of salon like ground, internal surfaces, walls and other installations were completely scavenged from dung and feather and dust. Heating and gleaming systems were controlled to assure their validity.

All zones were washed once more by high pressure water Fomagen disinfector and laundery powder which has useful effects such as washing out the oily, fungal, microbial, viral and parasite pollutants. Bottom and all walls to 1meter of height were flamed in order to remove parasite and microbe's eggs. Then the salon was disinfected by Despadak disinfecting solution which removes a wide range of bacteria's, spores, fungal, yeasts, and viruses.

All of the instruments such as feeder and drinker and those which were washable, were submerged in water and then washed by water and brush. After that those instruments were submerged in Despadak solution for 30 minutes and then washed by water. Salon's bottom and wells were limed by mixture of water and lime before transferring instruments and equipments. The outer enclosure of salon was limed by lime powder too.

The water system containing poultry drink water, was vacated, Dredging and washed. Tanks and pipes were filled by disinfecting chloride and vacated after 24 hours and then washed by neat water. Since formalex gas was used windows, ventilators and all spots which could let the gas out, were closed. All of the instruments and equipments such as feeder, drinker, carton roll, thermometer and etc were transferred to salon to exposure the gas. The salon's temperature reached to 25º C and then the salon was gassed. The door and windows were opened and ventilators were turned on 48 hours later in order to remove the effects of gas and then the carton rolls were set on the bottom of salon.

**Salon's temperature**

Salons temperature was programmed during the rearing period according to thermal needs of chickens. In order to control the temperature during the rearing period in all zones of salon, 5 thermometers in 5 points of salon were hanged.

**Salon's light**

The lightening program was 24 hours of complete lightening for first two days and then since the third day to the end of rearing period, 1 hour of black out in each 24 hours. It's should be noted that the 1 hour of black out was between 8:00 to 9:00 pm.

**Vaccination**

Each of the bronchitis, Newcastle and Gambro,Vaccines were injected to the chickens two times.

**Population and types of birds**

200 male one day broiler chicks of Ross 308 kind were transferred to twenty 1.5×1 meter pens. It should be noted that all of the male one day Chickens were sex determined first. In this experiment 5 treatments with 4 repetition for each treatment and ten birds in each repetition in each pen were used. The period's length was 42 days which was included the first 10 days, 18 days of growth and the last 14 days.

**Treatments**

In this experiment, prebiotics TechnoMos, which is made by Biochem company in Germany, was used as a source of Mannan oligosaccharides.

The treatments in this experiment include:

Treatment 1: basic diet with 0.1% of prebiotics TechnoMos (which was considered fix for starter, growth and final periods).

Treatment 2: basic diet with 0.15% of prebiotics TechnoMos (which was considered fix for starter, growth and final periods).

Treatment 3: basic diet with 0.2% of prebiotics TechnoMos (which was considered fix for starter, growth and final periods).

Treatment 4: basic diet with 0.25% of prebiotics TechnoMos (which was considered fix for starter, growth and final periods).

Treatment 5: basic diet without prebiotics (control treatment).

In this experiment, the firs treatment contains basic diet with 0.1 percent prebiotics TechnoMos (the suggested level by the maker factory) but the second, third and fourth treatment which have higher prebiotics TechnoMos than the first treatment were used in order to find out whether the higher levels has better effects on the performance of chickens or not?

**Diets in the experiment**

Experimental diets for 3 periods (starter, growth and finisher) were designed according to the needs which are recommended in the rearing Ross 308 broiler chicks guide (catalogue). During the rearing period, water and food were disposed freely for chickens. Composition of consuming food and compost for starter, growth and final periods are shown in tables 1 and 2.

**Table 1. Used diets during experimental periods**

| Ingredient | Starter | Grower | Finisher |
|---|---|---|---|
| Corn (%) | 54.5 | 58.5 | 62.7 |
| Soybean (%) | 37.5 | 33.5 | 29.5 |
| Sunflower oil (%) | 4 | 4 | 4 |
| Calcium Carbonate (%) | 1.2 | 1.2 | 1.1 |
| Dicalcium Phosphate (%) | 1.6 | 1.5 | 1.5 |
| NaCl (%) | 0.23 | 0.26 | 0.25 |
| Mineral mix (%) | 0.3 | 0.3 | 0.3 |
| Vitamin mix (%) | 0.3 | 0.3 | 0.3 |
| Baking soda (%) | 0.12 | 0.14 | 0.1 |
| DL-Metionine (%) | 0.18 | 0.21 | 0.15 |
| L-Lysine (%) | 0.07 | 0.09 | 0.1 |
| Total (%) | 100 | 100 | 100 |

**Table 2. Nutrients Analysis of used diets during experimental periods**

| Ingredient | Starter | Grower | Finisher |
|---|---|---|---|
| Energy (kcal/kg) | 3010 | 3050 | 3100 |
| Protein (%) | 21.04 | 19.60 | 18.18 |
| Lysine (%) | 1.27 | 1.10 | 0.97 |
| Met + Cys (%) | 0.94 | 0.84 | 0.76 |
| Methionine (%) | 0.47 | 0.42 | 0.36 |
| Arginine (%) | 1.31 | 1.14 | 1.02 |
| Tryptophan (%) | 0.20 | 0.18 | 0.16 |
| Calcium (%) | 1.05 | 0.90 | 0.85 |
| Available Phosphorus (%) | 0.5 | 0.45 | 0.42 |
| Magnesium (%) | 0.05 | 0.06 | 0.05 |
| Sodium (%) | 21.04 | 19.60 | 18.18 |
| Chloride (%) | 0.17 | 0.17 | 0.16 |
| Potassium (%) | 0.5 | 0.40 | 0.40 |
| Copper (mg/kg) | 16 | 16 | 18 |
| Iodine (mg/kg) | 1.25 | 1.25 | 1.25 |
| Iron (mg/kg) | 40 | 40 | 40 |
| Manganese (mg/kg) | 120 | 120 | 120 |
| Selenium (mg/kg) | 0.3 | 0.30 | 0.30 |
| Zinc (mg/kg) | 100 | 100 | 100 |
| Vitamin A (IU/kg) | 11000 | 9000 | 9000 |
| Vitamin E (IU/kg) | 75 | 50 | 50 |
| Vitamin K (mg/kg) | 3 | 3 | 2 |
| Vitamin B12 (mg/kg) | 0.016 | 0.016 | 0.010 |
| Vitamin B2 (mg/kg) | 8 | 6 | 5 |

**The characteristics which were measured and the measurement method**

**Carcass detachment**

On last day of rearing period (42 days old) one sample of each repetition was choose randomly. First they were slayed, then the carcasses were detached and different parts of them such as live weight, without feather carcass weight, full carcass weight, empty carcass weight, back neck weight, neck weight, breast meat weight, wing weight, Femur meat weight, gizzard weight, liver weight, Proventriculus weight, abdominal fat weight, pancreas weight, lung weight, heart weight, spleen weight, Thymus weight, bursa fabricius weight, head weight, brain weight, testicles weight, duodenum weight, ileum weight, jejunum weight, colon weight, cecum weight, duodenum length, duodenum width, duodenum diameter, ileum length, ileum width, ileum diameter, jejunum length, jejunum width, jejunum diameter, cecum length, cecum width, cecum diameter, colon length, colon width, colon diameter were compared with each other. Weight of every organ was measured by digital balance with 1 gram accuracy. Different parts of gut were measured with centimeter and digital caliper.

**Internal organs weight percent to without feather carcass weight**

Internal organs weight to total wit out feather carcass weight after measuring different parts of carcass, each organ of carcass was divided on without feather carcass weight and their percents were calculated. These data include empty carcass percent,-breast meat percent, wing percent, femur meat percent, neck percent, back neck chine percent, gizzard percent, liver percent, Proventriculus percent, abdominal fat percent, pancreas percent, lung percent, heart percent, kidney percent, spleen percent, Thymus percent, bursa fabricius percent, head percent, brain percent, testicles percent, duodenum percent, ileum percent, jejunum percent, colon percent and cecum percent.

**Data analyze method**

This experiment was done in a complete random pattern. Data was statistically analyzed by the SPSS software and the averages were compared with each other by Duncan Test at 0.05 level. The statistical model was like this:

$Xij = \mu + Tj + eij$

In this formula Xij shows the numeral amount of each observation in the experiment, μ is the average of total society that is studied through samples with zero assumption, Tj shows the effects of each group or experimental diet and eij indicates the effects of error. Thus the numeral amount for each observation has gained from the total treatment's effects, experiment error and total society average.

In data's which needed conversion, according to the case, appropriate conversion was used and the converted data were used in the statistical analysis.

## 4. RESULTS

The results of the effect of prebiotics on broiler chicks carcass characteristics is shown in Table 3:

**Table 3**- Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait<br>Treatment | without feather carcass weight(gr) | Full carcass weight(gr) | Empty carcass weight(gr) | Breast meat weight(gr) | Femur meat weight (gr) | Wing weight(gr) | Neck weight (gr) | Back neck chine (rachis) weight (gr) | Crop weight (gr) | gizzard weight (gr) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 2045.250$^{a}$±90.288 | 1842.500$^{a}$±83.728 | 1406.750$^{a}$±76.582 | 506.000$^{a}$±43.562 | 434.500$^{a}$±17.342 | 128.000$^{a}$±5.817 | 53.930$^{a}$±1.645 | 80.708$^{a}$±5.998 | 11.415$^{b}$±1.029 | **61.778$^{bc}$±2.502** |
| 2 (Control Diet + 0.15% Prebiotics) | 1941.750$^{a}$±51.056 | 1752.500$^{a}$±42.451 | 1297.500$^{a}$±28.687 | 461.500$^{a}$±10.958 | 415.000$^{a}$±8.524 | 109.000$^{b}$±1.780 | 54.533$^{a}$±4.874 | 76.945$^{a}$±6.497 | 13.488$^{b}$±3.715 | **59.138$^{bc}$±3.565** |
| 3 (Control Diet + 0.2% Prebiotics) | 2148.000$^{a}$±97.729 | 1947.500$^{a}$±89.104 | 1402.250$^{a}$±70.327 | 504.250$^{a}$±31.057 | 462.750$^{a}$±27.189 | 116.000$^{ab}$±3.082 | 52.283$^{a}$±5.498 | 80.573$^{a}$±5.813 | 28.058$^{a}$±5.262 | **74.643$^{a}$±4.178** |
| 4 (Control Diet + 0.25 % Prebiotics) | 2056.250$^{a}$±57.959 | 1867.500$^{a}$±55.734 | 1346.750$^{a}$±39.928 | 534.500$^{a}$±13.726 | 446.500$^{a}$±26.754 | 108.500$^{b}$±8.292 | 50.220$^{a}$±1.357 | 58.500$^{b}$±4.272 | 21.380$^{ab}$±4.972 | **67.795$^{ab}$±4.118** |
| 5 (Control Diet without Prebiotics) | 1951.750$^{a}$±66.912 | 1768.500$^{a}$±60.359 | 1345.750$^{a}$±66.831 | 505.250$^{a}$±34.025 | 434.000$^{a}$±19.515 | 130.750$^{a}$±6.277 | 48.750$^{a}$±0.946 | 57.750$^{b}$±2.642 | 10.210$^{b}$±0.770 | **55.998$^{c}$±1.910** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued)** - Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait<br>Treatment | Proventriculus weight (gr) | Liver weight(gr) | Abdominal fat weight (gr) | Head weight(gr) | Lung weight (gr) | Heart weight (gr) | Kidney weight (gr) | Thymus weight (gr) | bursa fabricius weight (gr) | Spleen weight (gr) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 10.165$^{ab}$±0.196 | 53.535$^{b}$±1.352 | 26.130$^{ab}$±7.115 | 65.250$^{a}$±5.023 | 11.585$^{a}$±0.811 | 11.413$^{a}$±0.932 | 12.595$^{a}$±0.876 | 5.480$^{a}$±0.798 | 2.520$^{a}$±0.876 | **3.893$^{a}$±0.410** |
| 2 (Control Diet + 0.15% Prebiotics) | 9.455$^{b}$±0.562 | 52.523$^{b}$±3.528 | 34.523$^{b}$±2.874 | 63.000$^{a}$±1.633 | 11.698$^{a}$±0.386 | 10.405$^{a}$±0.873 | 10.443$^{a}$±1.168 | 5.105$^{a}$±1.020 | 1.988$^{a}$±0.446 | **3.025$^{ab}$±0.319** |
| 3 (Control Diet + 0.2% Prebiotics) | 12.028$^{a}$±1.159 | 74.493$^{a}$±9.304 | 36.660$^{b}$±3.577 | 64.250$^{a}$±4.090 | 11.965$^{a}$±1.106 | 11.800$^{a}$±0.788 | 12.285$^{a}$±0.405 | 6.165$^{a}$±0.629 | 1.598$^{a}$±0.207 | **3.778$^{a}$±0.098** |
| 4 (Control Diet + 0.25 % Prebiotics) | 10.218$^{ab}$±0.703 | 64.625$^{ab}$±4.077 | 24.890$^{ab}$±2.719 | 63.750$^{a}$±3.425 | 10.818$^{a}$±0.845 | 10.913$^{a}$±0.448 | 12.995$^{a}$±0.144 | 4.443$^{a}$±0.266 | 1.498$^{a}$±0.353 | **2.745$^{b}$±0.264** |
| 5 (Control Diet without Prebiotics) | 8.973$^{b}$±0.226 | 50.073$^{b}$±3.949 | 20.483$^{a}$±2.789 | 58.000$^{a}$±2.380 | 11.495$^{a}$±0.534 | 11.375$^{a}$±0.532 | 11.508$^{a}$±0.955 | 6.333$^{a}$±0.349 | 2.293$^{a}$±0.654 | **2.560$^{b}$±0.312** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued) -** Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait Treatment | Brain weight (gr) | Testicles weight (gr) | Pancreas weight (gr) | Duodenum weight (gr) | Ileum weight (gr) | Jejunum weight (gr) | colon weight (gr) | cecum weight (gr) | percentage Empty carcass | Breast meat percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 2.980$^{a}$±0.102 | 0.453$^{a}$±0.074 | 6.335$^{a}$±0.954 | 28.545$^{a}$±1.815 | 10.245$^{a}$±1.258 | 108.055$^{b}$±9.022 | 4.905$^{a}$±0.492 | 13.878$^{a}$±2.358 | 68.689$^{a}$±0.818 | **24.609$^{a}$±1.089** |
| 2 (Control Diet + 0.15% Prebiotics) | 3.060$^{a}$±0.085 | 0.520$^{a}$±0.049 | 5.175$^{a}$±0.392 | 31.010$^{a}$±2.053 | 13.635$^{a}$±2.64 | 128.998$^{ab}$±4.375 | 4.843$^{a}$±0.276 | 16.218$^{a}$±4.041 | 66.846$^{ab}$±0.522 | **23.781$^{a}$±0.398** |
| 3 (Control Diet + 0.2% Prebiotics) | 2.990$^{a}$±0.073 | 0.638$^{a}$±0.143 | 5.933$^{a}$±0.693 | 30.815$^{a}$±3.599 | 13.220$^{a}$±2.582 | 149.988$^{a}$±8.761 | 4.215$^{a}$±0.485 | 19.085$^{a}$±3.701 | 65.250$^{b}$±0.606 | **23.442$^{a}$±0.200** |
| 4 (Control Diet + 0.25 % Prebiotics) | 3.098$^{a}$±0.093 | 0.488$^{a}$±0.059 | 6.365$^{a}$±0.296 | 28.823$^{a}$±4.071 | 10.718$^{a}$±1.735 | 141.683$^{ab}$±12.997 | 5.135$^{a}$±0.390 | 21.323$^{a}$±4.304 | 66.369$^{ab}$±0.532 | **26.017$^{a}$±0.558** |
| 5 (Control Diet without Prebiotics) | 2.928$^{a}$±0.040 | 0.403$^{a}$±0.143 | 4.613$^{a}$±0.531 | 23.945$^{a}$±2.141 | 13.275$^{a}$±1.156 | 115.950$^{ab}$±15.450 | 4.673$^{a}$±1.286 | 16.843$^{a}$±3.047 | 68.861$^{a}$±1.455 | **25.821$^{a}$±1.064** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued) -** Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait Treatment | percentage Femur meat | percentage Wings | Neck percentage | Back neck chine (rachis) percentage | Liver percentage | percentage gizzard | Heart percentage | Kidney percentage | Proventriculus percentage | Lung percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 21.256$^{a}$±0.122 | 6.272$^{ab}$±0.265 | 2.642$^{a}$±0.049 | 3.938$^{a}$±0.193 | 2.625$^{b}$±0.066 | 3.027$^{ab}$±0.116 | 0.560$^{a}$±0.046 | 0.617$^{a}$±0.042 | 0.499$^{ab}$±0.021 | **0.566$^{a}$±0.034** |
| 2 (Control Diet + 0.15% Prebiotics) | 21.382$^{a}$±0.128 | 5.623$^{c}$±0.155 | 2.795$^{a}$±0.180 | 3.962$^{a}$±0.328 | 2.698$^{b}$±0.129 | 3.040$^{ab}$±0.124 | 0.537$^{a}$±0.047 | 0.536$^{a}$±0.055 | 0.485$^{ab}$±0.018 | **0.602$^{a}$±0.014** |
| 3 (Control Diet + 0.2% Prebiotics) | 21.515$^{a}$±0.425 | 5.443$^{c}$±0.335 | 2.414$^{a}$±0.146 | 3.757$^{a}$±0.233 | 3.431$^{a}$±0.278 | 3.488$^{a}$±0.207 | 0.551$^{a}$±0.038 | 0.573$^{a}$±0.013 | 0.556$^{a}$±0.032 | **0.557$^{a}$±0.045** |
| 4 (Control Diet + 0.25 % Prebiotics) | 21.658$^{a}$±0.738 | 5.260$^{c}$±0.295 | 2.443$^{a}$±0.035 | 2.847$^{b}$±0.211 | 3.148$^{ab}$±0.210 | 3.306$^{ab}$±0.233 | 0.531$^{a}$±0.020 | 0.633$^{a}$±0.017 | 0.496$^{ab}$±0.032 | **0.528$^{a}$±0.048** |
| 5 (Control Diet without Prebiotics) | 22.216$^{a}$±0.366 | 6.689$^{a}$±0.110 | 2.507$^{a}$±0.103 | 2.964$^{b}$±0.122 | 2.570$^{b}$±0.195 | 2.873$^{b}$±0.082 | 0.583$^{a}$±0.021 | 0.586$^{a}$±0.031 | 0.460$^{b}$±0.015 | **0.588$^{a}$±0.010** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued) -** Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait Treatment | Pancreas percentage | Crop percentage | Abdominal fat percentage | Head percentage | bursa fabricius percentage | Testicles percentage | Brain percentage | Spleen percentage | Thymus percentage | Duodenum percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 0.306$^{a}$±0.038 | 0.563$^{b}$±0.058 | 1.307$^{ab}$±0.403 | 3.189$^{a}$±0.194 | 0.121$^{a}$±0.038 | 0.022$^{a}$±0.003 | 0.146$^{a}$±0.006 | 0.189$^{a}$±0.013 | 0.268$^{a}$±0.039 | **1.413$^{a}$±0.144** |
| 2 (Control Diet + 0.15% Prebiotics) | 0.267$^{a}$±0.023 | 0.697$^{ab}$±0.194 | 1.775$^{b}$±0.134 | 3.246$^{a}$±0.060 | 0.101$^{a}$±0.022 | 0.026$^{a}$±0.002 | 0.157$^{a}$±0.006 | 0.156$^{ab}$±0.016 | 0.260$^{a}$±0.046 | **1.599$^{a}$±0.113** |
| 3 (Control Diet + 0.2% Prebiotics) | 0.276$^{a}$±0.030 | 1.295$^{a}$±0.224 | 1.703$^{ab}$±0.127 | 3.003$^{a}$±0.201 | 0.074$^{a}$±0.008 | 0.029$^{a}$±0.005 | 0.139$^{a}$±0.004 | 0.176$^{a}$±0.005 | 0.286$^{a}$±0.023 | **1.429$^{a}$±0.147** |
| 4 (Control Diet + 0.25 % Prebiotics) | 0.311$^{a}$±0.022 | 1.046$^{ab}$±0.260 | 1.224$^{ab}$±0.168 | 3.100$^{a}$±0.143 | 0.073$^{a}$±0.016 | 0.023$^{a}$±0.003 | 0.150$^{a}$±0.002 | 0.133$^{b}$±0.011 | 0.160$^{a}$±0.055 | **1.391$^{a}$±0.162** |
| 5 (Control Diet without Prebiotics) | 0.237$^{a}$±0.028 | 0.525$^{ab}$±0.045 | 1.049$^{a}$±0.134 | 2.972$^{a}$±0.077 | 0.121$^{a}$±0.039 | 0.015$^{a}$±0.007 | 0.150$^{a}$±0.006 | 0.130$^{b}$±0.013 | 0.235$^{a}$±0.079 | **1.226$^{a}$±0.096** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued) -** Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait Treatment | Ileum percentage | Jejunum percentage | colon percentage | cecum percentage | Duodenum length (cm) | Ileum length (cm) | Jejunum length (cm) | colon length (cm) | cecum length (cm) | Duodenum width (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 (Control Diet + 0.1% Prebiotics) | 0.496$^{a}$±0.045 | 5.277$^{a}$±0.354 | 0.240$^{a}$±0.022 | 0.679$^{a}$±0.111 | 43.625$^{a}$±1.491 | 21.425$^{a}$±2.473 | 142.850$^{ab}$±13.898 | 10.425$^{a}$±0.551 | 20.785$^{a}$±0.607 | **5.243$^{ab}$±0.489** |
| 2 (Control Diet + 0.15% Prebiotics) | 0.702$^{a}$±0.074 | 6.656$^{a}$±0.285 | 0.192$^{a}$±0.065 | 0.822$^{a}$±0.182 | 48.725$^{a}$±0.629 | 23.900$^{a}$±3.537 | 155.000$^{ab}$±11.431 | 10.350$^{a}$±0.218 | 21.575$^{a}$±1.870 | **4.348$^{b}$±1.402** |
| 3 (Control Diet + 0.2% Prebiotics) | 0.609$^{a}$±0.103 | 7.049$^{a}$±0.588 | 0.196$^{a}$±0.020 | 0.872$^{a}$±0.142 | 39.950$^{a}$±6.014 | 21.125$^{a}$±2.973 | 163.875$^{a}$±5.643 | 10.900$^{a}$±1.491 | 22.475$^{a}$±1.677 | **6.658$^{ab}$±1.132** |
| 4 (Control Diet + 0.25 % Prebiotics) | 0.519$^{a}$±0.080 | 6.882$^{a}$±0.542 | 0.249$^{a}$±0.017 | 1.043$^{a}$±0.209 | 44.175$^{a}$±4.065 | 19.775$^{a}$±0.679 | 162.250$^{ab}$±4.370 | 9.350$^{a}$±0.433 | 22.500$^{a}$±0.471 | **7.598$^{a}$±0.821** |
| 5 (Control Diet without Prebiotics) | 0.687$^{a}$±0.080 | 6.008$^{a}$±0.917 | 0.238$^{a}$±0.063 | 0.854$^{a}$±0.141 | 43.725$^{a}$±2.412 | 21.375$^{a}$±1.546 | 131.175$^{b}$±9.990 | 9.800$^{a}$±0.875 | 19.075$^{a}$±1.252 | **6.158$^{ab}$±0.478** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Table 3(Continued) -** Mean comparison (±SEM) of carcass characteristics among five studied treatments*

| Trait<br>Treatment | Ileum width (mm) | Jejunum width (mm) | colon width (mm) | cecum width (mm) | Duodenum diameter (mm) | Ileum diameter (mm) | Jejunum diameter (mm) | colon diameter (mm) | cecum diameter (mm) |
|---|---|---|---|---|---|---|---|---|---|
| **1 (Control Diet + 0.1% Prebiotics)** | 5.235$^{b}$±1.068 | 6.165$^{b}$±0.163 | 4.555$^{a}$±0.374 | 8.100$^{a}$±0.676 | 0.624$^{a}$±0.044 | 0.481$^{a}$±0.155 | 0.687$^{a}$±0.167 | 0.700$^{a}$±0.104 | **0.577$^{a}$±225.406** |
| **2 (Control Diet + 0.15% Prebiotics)** | 8.470$^{ab}$±0.550 | 6.380$^{b}$±1.210 | 5.750$^{a}$±1.190 | 6.470$^{a}$±1.463 | 0.406$^{a}$±0.148 | 0.497$^{a}$±0.059 | 0.447$^{b}$±0.091 | 0.615$^{a}$±0.073 | **0.510$^{a}$±181.239** |
| **3 (Control Diet + 0.2% Prebiotics)** | 8.950$^{a}$±2.129 | 12.455$^{a}$±2.731 | 6.663$^{a}$±1.094 | 6.940$^{a}$±1.805 | 0.498$^{a}$±0.020 | 0.499$^{a}$±0.065 | 0.458$^{b}$±0.099 | 0.582$^{a}$±0.047 | **0.447$^{a}$±202.355** |
| **4 (Control Diet + 0.25 % Prebiotics)** | 6.950$^{ab}$±0.915 | 9.938$^{ab}$±0.897 | 7.085$^{a}$±0.886 | 7.750$^{a}$±1.133 | 0.485$^{a}$±0.029 | 0.441$^{a}$±0.039 | 0.476$^{ab}$±0.038 | 0.474$^{a}$±0.037 | **0.430$^{a}$±134.731** |
| **5 (Control Diet without Prebiotics)** | 6.595$^{ab}$±0.320 | 9.255$^{ab}$±0.647 | 4.890$^{a}$±0.602 | 7.473$^{a}$±0.880 | 0.538$^{a}$±0.021 | 0.506$^{a}$±0.018 | 0.489$^{ab}$±0.039 | 0.595$^{a}$±0.231 | **0.429$^{a}$±204.261** |

*Means in each column followed by the same letters are not significantly different at α=0.05.

**Without feather carcass weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks without feather body weight gain (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest effect on broiler chicks without feather body weight gain, but the existing difference is not significant statistically (P>0.05). After that 4th treatment (0.25 % prebiotic), 1st treatment (0.1 % prebiotic) and 5th treatment (0.0 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15 % prebiotic) had the weakest effect.

**Full carcass weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks full carcass weight (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest effect on broiler chicks full carcass weight, but the existing difference is not significant statistically (P>0.05). After that 4th treatment (0.25 % prebiotic), 1st treatment (0.1 % prebiotic) and 5th treatment (0.0 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15 % prebiotic) had the weakest effect.

**Empty carcass weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks empty carcass weight (P>0.05). Study on the comparison of averages from the experiment showed that 1st treatment (0.1 % prebiotic) has the highest effect on broiler chicks empty carcass weight, but the existing difference is not significant statistically (P>0.05). After that 3rd treatment (0.2 % prebiotic), 4th treatment (0.25 % prebiotic) and 5th treatment (0.0 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15 % prebiotic) had the weakest effect.

**Breast meat weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks breast meat weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks breast meat weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1 % prebiotic), 5th treatment (0.0 % prebiotic) and 3rd treatment (0.2 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15 % prebiotic) had the weakest effect.

**Femur meat weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks femur meat weight (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest effect on broiler chicks femur meat weight, but the existing difference is not significant statistically (P>0.05). After that 4th treatment (0.25 % prebiotic), 1st treatment (0.1 % prebiotic) and 5th treatment (0.0 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15 % prebiotic) had the weakest effect.

**Wing weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks wing weight (P <0.05). Study on the comparison of averages from the experiment showed that in order 5th treatment (0.0% prebiotic) and 1st treatment (0.1 % prebiotic) have the most increase in broiler chicks wing weight statistically (P<0.05) after them 3rd treatment (0.2% prebiotic) and 2nd treatment (0.15 % prebiotic) had lower increase respectively and at last 4th treatment (0.25 % prebiotic) had the lowest increase.

**Neck weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks neck weight (P>0.05). Study on the comparison of averages from the experiment showed that 2nd treatment (0.15 % prebiotic) has the highest effect on broiler chicks neck weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1 % prebiotic), 3rd treatment (0.2%

prebiotic) and 4th treatment (0.25 % prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Back neck chine weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks back neck chine weight (P <0.05). Study on the comparison of averages from experiment showed that statistically 1st treatment (0.1% prebiotic), 3rd treatment (0.2 % prebiotic) and 2nd treatment (0.15 % prebiotic) had the highest increase in broiler chicks back neck chine weight respectively. After them 4th treatment (0.25%) and 5th treatment (0.0% prebiotic) have the lowest amount respectively.

**Crop weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks crop weight (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest increase in broiler chicks crop weight statistically. After that 4th treatment (0.25% prebiotic) 2nd treatment (0.15% prebiotic) and 1st treatment (0.1% prebiotic) have lower amounts respectively. And at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Gizzard weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks gizzard weight (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest increase in broiler chicks gizzard weight statistically. After that 4th treatment (0.25% prebiotic) 1st treatment (0.1% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively. And at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Proventriculus weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Proventriculus weight (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest increase in broiler chicks Proventriculus weight statistically. After that 4th treatment (0.25% prebiotic) 1st treatment (0.1% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively. And at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Liver weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks liver weight (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2 % prebiotic) has the highest increase in broiler chicks liver weight statistically. After that 4th treatment (0.25% prebiotic) 1st treatment (0.1% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively. And at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Abdominal fat weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks abdominal fat (P<0.05). Study on the comparison of averages from the experiment showed that 5th treatment (0.0% prebiotic) has the lowest amount of broiler chicks abdominal fat statistically (P<0.05) after that 4th treatment (0.25% prebiotic) and 1st treatment (0.1% prebiotic) have higher amounts respectively and at last 2nd treatment (0.15% prebiotic) and 3rd treatment (0.2% prebiotic) had the highest amount of abdominal fat weight.

**Head weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks head weight (P>0.05). Study on the comparison of averages from the experiment showed that 1st treatment (0.1% prebiotic) has the highest effect on broiler chicks head weight, but the existing difference is not significant statistically (P>0.05). After that 3rd treatment (0.2% prebiotic), 4th treatment (0.25% prebiotic) and 2nd treatment (0.15% prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Lung weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks lung weight (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks lung weight, but the existing difference is not significant statistically (P>0.05). After that 2nd treatment (0.15% prebiotic), 1st treatment (0.1% prebiotic) and 5th treatment (0.0% prebiotic) had lower effects respectively and at last 4th treatment (0.25% prebiotic) had the weakest effect.

**Heart weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks heart weight (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks heart weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1 % prebiotic), 5th treatment (0.0%

prebiotic) and 4th treatment (0.25 % prebiotic) had lower effects respectively and at last 2nd treatment (0.15% prebiotic) had the weakest effect.

**Kidney weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks kidney weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks kidney weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1 % prebiotic), 3rd treatment (0.2% prebiotic) and 5th treatment (0.0% prebiotic) had lower effects respectively and at last 2nd treatment (0.15% prebiotic) had the weakest effect.

**Thymus weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks thymus weight (P>0.05). Study on the comparison of averages from the experiment showed that 5th treatment (0.0% prebiotic) has the highest effect on broiler chicks thymus weight, but the existing difference is not significant statistically (P>0.05). After that 3rd treatment (0.2% prebiotic), 1st treatment (0.1 % prebiotic) and 2nd treatment (0.15% prebiotic) had lower effects respectively and at last 4th treatment (0.25 % prebiotic) had the weakest effect.

**Bursa fabricius weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks bursa fabricius weight (P>0.05). Study on the comparison of averages from the experiment showed that 1st treatment (0.1 % prebiotic) has the highest effect on broiler chicks bursa fabricius weight, but the existing difference is not significant statistically (P>0.05). After that 5th treatment (0.0% prebiotic), 2nd treatment (0.15% prebiotic) and 3rd treatment (0.2% prebiotic) had lower effects respectively and at last 4th treatment (0.25 % prebiotic) had the weakest effect.

**Spleen weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks spleen weight (P<0.05). Study on the comparison of averages from the experiment showed that statistically 1st treatment (0.1% prebiotic) and 3rd treatment (0.2% prebiotic) have the highest increase in broiler chicks spleen weight (P<0.05) after that 2nd treatment (0.15% prebiotic) and 4th treatment (0.25% prebiotic) have lower amounts respectively. And at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Brain weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks brain weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks brain weight, but the existing difference is not significant statistically (P>0.05). After that 2nd treatment (0.15% prebiotic), 3rd treatment (0.2% prebiotic) and 1st treatment (0.1% prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Testicles weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks testicles weight (P>0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks testicles weight, but the existing difference is not significant statistically (P>0.05). After that 2nd treatment (0.15% prebiotic), 4th treatment (0.25 % prebiotic) and 1st treatment (0.1% prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Pancreas weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks pancreas weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks pancreas weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1% prebiotic), 3rd treatment (0.2% prebiotic) and 2nd treatment (0.15% prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Duodenum weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks duodenum weight (P>0.05). Study on the comparison of averages from the experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks duodenum weight, but the existing difference is not significant statistically (P>0.05). After that 3rd treatment (0.2% prebiotic), 4th treatment (0.25 % prebiotic) and 1st treatment (0.1% prebiotic) had lower effects respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Ileum weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks ileum weight (P>0.05). Study on the comparison of averages from the experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks ileum weight, but the existing difference is not significant statistically (P>0.05). After that 5th treatment (0.0% prebiotic), 3rd treatment (0.2% prebiotic) and 4th treatment (0.25 % prebiotic) had lower effects respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Jejunum weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks jejunum weight (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase in broiler chicks jejunum weight statistically. (P<0.05) after that 4th treatment (0.25% prebiotic) 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) had lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the lowest amount.

**Colon weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks colon weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks colon weight, but the existing difference is not significant statistically (P>0.05). After that 1st treatment (0.1% prebiotic), 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) had lower effects respectively and at last 3rd treatment (0.2% prebiotic) had the weakest effect.

**Cecum weight**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks cecum weight (P>0.05). Study on the comparison of averages from the experiment showed that 4th treatment (0.25 % prebiotic) has the highest effect on broiler chicks cecum weight, but the existing difference is not significant statistically (P>0.05). After that 3rd treatment (0.2% prebiotic), 5th treatment (0.0% prebiotic) and 2nd treatment (0.15% prebiotic) had lower effects respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Effect of different levels of prebiotic TechnoMos on internal organs weight to total without feather carcass weight percent**

**Empty carcass weight to without feather carcass weight proportion]**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks empty carcass weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that statistically 5th treatment (0.0% prebiotic) and 1st treatment (0.1% prebiotic) have the highest increase in broiler chicks empty carcass weight to without feather carcass weight proportion respectively (P<0.05). After them 2nd treatment (0.15% prebiotic) and 4th treatment (0.25% prebiotic) had lower amounts respectively and at last 3rd treatment (0.2% prebiotic) had the lowest amount.

**Breast meat weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks Breast meat weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks Breast meat weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 5th treatment (0.0% prebiotic), 1st treatment (0.1% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 3rd treatment (0.2% prebiotic) had the weakest effect.

**Femur meat weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks femur meat weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 5th treatment (0.0% prebiotic) has the highest effect on broiler chicks femur meat weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 4th treatment (0.25% prebiotic), 3rd treatment (0.2% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Wing weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Wing weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 5th treatment (0.0% prebiotic) has the highest increase is broiler chicks Wing weight to without feather carcass weight proportion statistically (P<0.05). After that 1st treatment (0.01%

prebiotic), 2nd treatment (0.15% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 4th treatment (0.25% prebiotic) had the lowest amount.

**Neck weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks neck weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks neck weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 5th treatment (0.0% prebiotic) and 4th treatment (0.25% prebiotic) have lower amounts respectively and at last 3rd treatment (0.2% prebiotic) had the weakest effect.

**Back neck chine weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Back neck chine weight without feather carcass weight proportion (P<0.05). Study on the comparison of averages from this experiment showed that statistically 2nd treatment (0.15% prebiotic), 1st treatment (0.1% prebiotic) and 3rd treatment (0.2% prebiotic) have the higher increase in broiler chicks Back neck chine weight to without feather carcass weight proportion respectively (P<0.05) than 5th treatment (0.0% prebiotic) and 4th treatment (0.25% prebiotic).

**Liver weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks liver weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase is broiler chicks liver weight to without feather carcass weight proportion statistically (P<0.05). After that 4th treatment (0.25% prebiotic), 2nd treatment (0.15% prebiotic) and 1st treatment (0.1% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Gizzard weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks gizzard weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase is broiler chicks gizzard weight to without feather carcass weight proportion statistically (P<0.05). After that 4th treatment (0.25% prebiotic), 2nd treatment (0.15% prebiotic) and 1st treatment (0.1% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Heart weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks heart weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 5th treatment (0.0% prebiotic) has the highest effect on broiler chicks heart weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 3rd treatment (0.2% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 4th treatment (0.25% prebiotic) had the weakest effect.

**Kidney weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks kidney weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks kidney weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 5th treatment (0.0% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 2nd treatment (0.15% prebiotic) had the weakest effect.

**Proventriculus weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Proventriculus weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase is broiler chicks Proventriculus weight to without feather carcass weight proportion statistically (P<0.05). After that 1st treatment (0.1% prebiotic), 4th treatment (0.25% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Lung weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks lung weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks lung weight to without feather carcass weight proportion as numeral but the existing difference

is not significant statistically (P>0.05) after that 5th treatment (0.0% prebiotic), 1st treatment (0.1% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 4th treatment (0.25% prebiotic) had the weakest effect.

**Pancreas weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks pancreas weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks pancreas weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 3rd treatment (0.2% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Crop weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks crop weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase is broiler chicks crop weight to without feather carcass weight proportion statistically (P<0.05). After that 4th treatment (0.25% prebiotic), 5th treatment (0.0% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the lowest amount.

**Abdominal fat weight to without feather carcass proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Abdominal fat weight to without feather carcass proportion (P<0.05). Study on the comparison of averages from this experiment showed that 5th treatment (0.0% prebiotic) has the lowest amount of broiler chicks Abdominal fat weight to without feather carcass proportion statistically (P<0.05) after that 4th treatment (0.25% prebiotic), 1st treatment (0.1% prebiotic) and 3rd treatment (0.2% prebiotic) had higher amounts respectively and at last 2nd treatment (0.15% prebiotic) had the highest amount.

**Head weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks head weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks head weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 4th treatment (0.25% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Bursa fabricius weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks bursa fabricius weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 5th treatment (0.0% prebiotic) has the highest effect on broiler chicks bursa fabricius weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 2nd treatment (0.15% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 4th treatment (0.25% prebiotic) had the weakest effect.

**Testicles weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks testicles weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks testicles weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 2nd treatment (0.15% prebiotic), 4th treatment (0.25% prebiotic) and 1st treatment (0.1% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Brain weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks brain weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks brain weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 4th treatment (0.25% prebiotic), 5th treatment (0.0% prebiotic) and 1st treatment (0.1% prebiotic) have lower amounts respectively and at last 3rd treatment (0.2% prebiotic) had the weakest effect.

**Spleen weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks spleen weight to without feather carcass weight proportion (P<0.05). Study on the comparison of averages from the experiment showed that 1st treatment (0.1% prebiotic) has the highest increase is broiler chicks spleen weight to without feather carcass weight proportion statistically (P<0.05). After that 3rd treatment (0.2% prebiotic), 2nd treatment (0.15% prebiotic) and 4th treatment (0.25% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Thymus weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks thymus weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks thymus weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) have lower amounts respectively and at last 4th treatment (0.25% prebiotic) had the weakest effect.

**Duodenum weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks duodenum weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks duodenum weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 3rd treatment (0.2% prebiotic), 1st treatment (0.1% prebiotic) and 4th treatment (0.25% prebiotic) have lower amounts respectively and at last 5th treatment (0.0% prebiotic) had the weakest effect.

**Ileum weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks ileum weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks ileum weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 5th treatment (0.0% prebiotic), 3rd treatment (0.2% prebiotic) and 4th treatment (0.25% prebiotic) have lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Jejunum weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks Jejunum weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks Jejunum weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 4th treatment (0.25% prebiotic), 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) have lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Colon weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks colon weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks colon weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 5th treatment (0.0% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts respectively and at last 2nd treatment (0.15% prebiotic) had the weakest effect.

**Cecum weight to without feather carcass weight proportion**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks cecum weight to without feather carcass weight proportion (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks cecum weight to without feather carcass weight proportion as numeral but the existing difference is not significant statistically (P>0.05) after that 3rd treatment (0.2% prebiotic), 5th treatment (0.0% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts respectively and at last 1st treatment (0.1% prebiotic) had the weakest effect.

**Effect of different levels of prebiotic TechnoMos on gut's different parts length, width and diameter**

**Duodenum length**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks Duodenum length (P>0.05). Study on the comparison of averages from this experiment

showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks Duodenum length increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 4th treatment (0.25% prebiotic), 5th treatment (0.0% prebiotic) and 1st treatment (0.1% prebiotic) have lower amount and at last 3rd treatment (0.2% prebiotic) had the lowest amount.

**Ileum length**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks ileum length (P>0.05). Study on the comparison of averages from this experiment showed that 2nd treatment (0.15% prebiotic) has the highest effect on broiler chicks ileum length increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 5th treatment (0.0% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amount and at last 4th treatment (0.25% prebiotic) had the lowest amount.

**Jejunum length**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks jejunum length (P<0.05). Study on the results of this experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase in broiler chicks jejunum length statistically (P<0.05) after that 4th treatment (0.25% prebiotic), 2nd treatment (0.15% prebiotic) and 1st treatment (0.01% prebiotic) have lower amounts and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Colon length**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks colon length (P>0.05). Study on the comparison of averages from this experiment showed that 3rd treatment (0.2% prebiotic) has the highest effect on broiler chicks colon length increase as numeral，but the existing difference is not significant statistically (P>0.05) after that 1st treatment (0.1% prebiotic), 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) have lower amount and at last 4th treatment (0.25% prebiotic) had the lowest amount.

**Cecum length**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks cecum length (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks cecum length increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 3rd treatment (0.2% prebiotic), 2nd treatment (0.15% prebiotic) and 1st treatment (0.1% prebiotic) have lower amount and at last 5th treatment (0.0% prebiotic) had the lowest amount.

**Duodenum width**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks duodenum width (P<0.05). Study on the results of this experiment showed that 4th treatment (0.25% prebiotic) has the highest increase in broiler chicks duodenum width statistically (P<0.05) after that 3rd treatment (0.2% prebiotic), 5th treatment (0.0% prebiotic) and 1st treatment (0.01% prebiotic) have lower amounts and at last 2nd treatment (0.15% prebiotic) had the lowest amount.

**Ileum width**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks ileum width (P<0.05). Study on the results of this experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase in broiler chicks ileum width statistically (P<0.05) after that 2nd treatment (0.15% prebiotic), 4th treatment (0.25% prebiotic) and 5th treatment (0.0% prebiotic) have lower amounts and at last 1st treatment (0.01% prebiotic) had the lowest amount.

**Jejunum width**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks jejunum width (P<0.05). Study on the results of this experiment showed that 3rd treatment (0.2% prebiotic) has the highest increase in broiler chicks jejunum width statistically (P<0.05) after that 4th treatment (0.25% prebiotic), 5th treatment (0.0% prebiotic) and 2nd treatment (0.15% prebiotic) have lower amounts and at last 1st treatment (0.01% prebiotic) had the lowest amount.

**Colon width**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks colon width (P>0.05). Study on the comparison of averages from this experiment showed that 4th treatment (0.25% prebiotic) has the highest effect on broiler chicks colon width increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 3rd treatment (0.2% prebiotic), 2nd treatment (0.15% prebiotic) and 5th treatment (0.0% prebiotic) have lower amount and at last 1st treatment (0.1% prebiotic) had the lowest amount.

**Cecum width**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks cecum width (P>0.05). Study on the comparison of averages from this experiment

showed that 1st treatment (0.1% prebiotic) has the highest effect on broiler chicks cecum width increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 4th treatment (0.25% prebiotic), 5th treatment (0.0% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amount and at last 2nd treatment (0.15% prebiotic) had the lowest amount.

**Duodenum diameter**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks Duodenum diameter (P>0.05). Study on the comparison of averages from this experiment showed that 1st treatment (0.01% prebiotic) has the highest effect on broiler chicks Duodenum diameter increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 5th treatment (0.0% prebiotic), 3rd treatment (0.2% prebiotic) and 4th treatment (0.25% prebiotic) have lower amount and at last 2nd treatment (0.15% prebiotic) had the lowest amount.

**Ileum diameter**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks ileum diameter (P>0.05). Study on the comparison of averages from this experiment showed that 5th treatment (0.0% prebiotic) has the highest effect on broiler chicks ileum diameter increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 3rd treatment (0.2% prebiotic), 2nd treatment (0.15% prebiotic) and 1st treatment (0.01% prebiotic) have lower amount and at last 4th treatment (0.25% prebiotic) had the lowest amount.

**Jejunum diameter**

The results of this experiment showed that different levels of prebiotic TechnoMos has a significant effect on broiler chicks Jejunum diameter (P<0.05). Study on the results of this experiment showed that 1st treatment (0.1% prebiotic) has the highest increase in broiler chicks Jejunum diameter statistically (P<0.05) after that 5th treatment (0.0% prebiotic), 4th treatment (0.25% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amounts and at last 2nd treatment (0.15%) had the lowest amount.

**Colon diameter**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks colon diameter (P>0.05). Study on the comparison of averages from this experiment showed that 1st treatment (0.01% prebiotic) has the highest effect on broiler chicks colon diameter increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 2nd treatment (0.15% prebiotic), 5th treatment (0.0% prebiotic) and 3rd treatment (0.2% prebiotic) have lower amount and at last 4th treatment (0.25% prebiotic) had the lowest amount.

**Cecum diameter**

The results of this experiment showed that different levels of prebiotic TechnoMos has no significant effect on broiler chicks cecum diameter (P>0.05). Study on the comparison of averages from this experiment showed that 1st treatment (0.01% prebiotic) has the highest effect on broiler chicks cecum diameter increase as numeral, but the existing difference is not significant statistically (P>0.05) after that 2nd treatment (0.15% prebiotic), 3rd treatment (0.2% prebiotic) and 4th treatment (0.25% prebiotic) have lower amount and at last 5th treatment (0.0% prebiotic) had the lowest amount.

## 5. DISCUSSION

With a general Study on the results of this experiment which was on carcass characteristics，it can be concluded that a significant difference was observed between treatments about empty carcass percent, wing weight, wing percent, back neck chine Weight, back neck chine percent, gizzard Weight, gizzard percent, crop Weight, crop percent, Proventriculus Weight, Proventriculus percent, liver Weight, liver percent, spleen weight, spleen percent, abdominal fat Weight, abdominal fat percent, jejunum Weight, jejunum width, jejunum diameter, duodenum width and ileum width (P<0.05), But no significant difference was observed between treatments about live weight, without feather carcass Weight, full carcass Weight, empty carcass Weight, head Weight, head percent, breast meat Weight, breast meat percent, femur meat Weight, femur meat percent, neck Weight, neck percent, pancreas Weight, pancreas percent, lung Weight, lung percent, heart Weight, heart percent, kidney Weight, kidney percent, Thymus Weight, Thymus percent, brain Weight, brain percent, testicles Weight, testicles percent, bursa fabricius Weight, bursa fabricius percent, duodenum Weight, duodenum percent, ileum Weight, ileum percent, jejunum percent, colon Weight, colon percent, cecum Weight, cecum percent, duodenum length, ileum length, colon length, cecum length, colon width, cecum width, duodenum diameter, ileum diameter, colon diameter and cecum diameter (P>0.05).

Hoseini et al., (2010) studied the effect of different levels on Saccharomyces cerevisiae on broiler chick's performance and blood characteristics and found that the highest carcass yield was in treatment with 2kg yeast and the lowest carcass yield was in control treatment. But the difference was not significant statistically.

Moreover Lotfan et al., (2009) did not observe a significant difference in carcass yield which is inconsistent with the results of this experiment.

Khalaji et al., (2009) studied the effects of prebiotic TechnoMos on broiler chicks health. This experiment was done to Study the effect of prebiotic TechnoMos addition، which is based on Mannan oligosaccharide, on broiler chicks digestion system's health ($P<0.05$). The results showed that there is no difference between treatment in carcass and gizzard characteristics ($P>0.05$). This is inconsistent with our experiment. But absence of difference between breast meat and femur meat characteristics is similar to our experiment a difference between treatment in abdominal fat was observed ($P<0.05$). The treatment with 0.5g/kg TechnoMos ،had the lowest amount of abdominal fat and the treatment with 1.5g/kg TechnoMos had the highest amount of abdominal fat which is in consistent with the results of our experiment. Similar to our experiment ، no difference was observed between treatment in duodenum length and ileum length ($P>0.05$). No difference was observed in jejunum length which is inconsistent with our experiment's results. Prebiotic additions caused increase in duodenum length percent and reduce in ileum length، compared with control treatment. No difference was observed between treatments in duodenum weight either، but significantly treatments influenced jejunum weight percent (like our experiment) and ileum weight percent (inconsistent with our experiment) ($P<0.05$). Treatments with prebiotic TechnoMos caused linear increase in jejunum weight percent.

Hosseini et al., (2010) found that the highest breast meat and femur meat weight percent output is in treatment with 2 kg yeast and the lowest breast meat and femur meat weight percent in control treatment, but the differences were not significant statistically. These results is consistent with the result Celk et al., (2001) experiments. Afore said results are similar to our experiment's results. Also results show that yeast addition has a significant effect on liver weight percent and gizzard weight percent (similar to this experiment) and heart weight percent (different to this experiment) ($P<0.05$).

Lotfan et al., (2009) studied different levels of prebiotic on broiler chicks' performance and carcass characteristics, the results about carcass characteristics showed that there was no difference between treatments in guts and liver's weight percent (inconsistent with this experiment) and breast meat and femur meat's weight percent (different with this experiment). Difference between treatments was significant just in Abdominal fat percent ($P<0.05$), that is similar to this experiment. Levels of prebiotic had no significant effect on these characteristics. Difference between various sources of prebiotic was significant just in liver weight percent. Control treatment had significant difference with other treatments in Abdominal fat percent ($P<0.05$); Al though there was no significant difference between treatments in carcass weight percent inconsistent with this experiment ($P>0.05$), but as numeral some differences were observed between different diets as carcass weight percent in diets with prebiotic (A-max) was a little higher then diets with Mannan oligosaccharide prebiotic. Study on the comparison of averages from different sources of prebiotic, revealed that in liver weight percent, treatments with Mannan oligosaccharide prebiotic, compared with diets with (A-max) prebiotic, had high liver weight percent ($P<0.05$). Abdominal fat weight percent in control treatment was lower than other treatment (consistent with this experiment).

Mandal et al., (1996) and khan et al., (2000) Studied different levels of (A-max) prebiotic and reported that there is no significant difference between experimental diets in carcass weight percent. Waldroup et al., (2003) by using a kind of prebiotic, Biomos, reported that carcass characteristics and its parts were not influenced by this compound equally. Furthermore Mathivanan et al., (2006) studied the effect of prebiotics on broiler chicks carcass characteristics and reported that carcass characteristics and its' detached parts and carcass quality characteristics did not get effected by adding prebiotic. Finding of this experiment was consistent with aforesaid researcher's reports about absence of influence in prebiotic's sources and different levels on carcass characteristics and its detached parts, except for empty carcass percent, wing weight, back neck chine weight, back neck chine percent, gizzard weight, gizzard percent, crop weight, crop percent, Proventriculus weight, Proventriculus percent, liver weight, liver percent, spleen weight, spleen percent-abdominal fat weight, abdominal fat percent, jejunum weight, jejunum length, jejunum width, jejunum diameter, duodenum width and ileum width. Kannan et al., (2005) studied different sources of prebiotic (Mannan oligosaccharide derived from yeast and copra), and effect of prebiotics on broiler chicks Abdominal fat, reported that addition of 1g/kg prebiotic (extracted from yeast sources) 1.5g/kg Prebiotic (extracted from copra) reduces amount of Abdominal fat. They connected this to increase of microbial population as a result of prebiotic addition. Finding of this research are inconsistent with results of Kannan et al., (2005) about the amount of abdominal fat as control treatment had lower Abdominal fat than treatments with prebiotic. Perhaps this inconsistency is because of different prebiotic sources which were used.

Results of Ashayerizadeh et al., (2010) observations about effects of flavomycin antibiotic additives and Primalac and Biolex-MB non antibiotic additives on broiler chicks carcass characteristics, interned organs measure and blood characteristics in 21 days old birds, showed that none of edible additives had influence on breast meat and gizzard and liver and spleen and pancreas percent ($P>0.05$). These results were consistent with the results of pelicia et al., (2004) and Huang et al., (2007) reports. Finding of this research are consistent with

other researchers' report except for gizzard, liver and spleen percent. Breast meat and Abdominal fat percent in flavomycin treatment was higher than Primalac treatment ($P<0.05$). Abdominal fat percent in birds which were under Primalac treatment, compared with birds under Biolex-MB treatment, reduced significant ($P<0.05$). Jin et al., (1998) observed that by adding probiotic to diet, the amount of Abdominal fat reduces and they suggested that prebiotics can interfere in access on of fatty acids to produce fat tissue. Heart comparative weight (percent from live weight) in Biolex-MB and symbiotic treatments was higher than control treatment ($P<0.05$) which is inconsistent with this experiment. In this study, difference in heart measure maybe because of difference in growth speed and higher need to supply oxygen for tissues in chicks under Biolex-MB and symbiotic treatments.

Yaghobfar et al(2009) studied the effect of probiotic on broiler chicks performance and carcass composition under normal and heat challenge and found that prebiotic Primalac and control treatments had higher carcass weight than other experimental treatments and statistical difference existed ($P<0.05$). The lowest carcass weight was in *Aspergillus orizae* probiotic which had a statistical significant difference with other experimental treatments ($P<0.05$). There was a statistical difference between experimental treatments in carcass yield and the highest yield was in saccharomyces cerevisiae probiotic treatment and control treatment no significant statistical difference was observed between experimental treatments in carcass percent (in consistent with this experiment) and breast meat percent(consistent with this experiment). These condition are for breeding in normal and stressful conditions. Primalac prebiotic and control treatments had the highest carcass weight, carcass yield and breast meat and femur meat weight (Dela, 1991; Mohan et al., 1996; Kumprecht and Zobac, 1998 and Brzoska et al., 1999). In Karaoglu and Durdag (2005) experiment, probiotic groups had no effect on warm and cold carcass weight, carcass detached parts weight and abdominal fat weight. These are in consistent with this experiment.

Ghyamipour et al., (2009) studied the effects of Lactobacillus bacteria three isolates on broiler chicks performance and carcass characteristics and observed no significant effect in comparative weight percent of Proventriculus, gizzard, bursa fabricius, gut, liver and pancreas and observed no significant effect. Between organs, just spleen's weight had significant difference. There was a significant difference in jejunum length but there was no difference in ileum and duodenum length. Mohan et al., (1996) studied the effect of Probiolac probiotic additive on broiler chicks and their results showed that probiotic was not effective on organs weight.

Shirzadi et al., (2009) studied the effect of beta-gluconase and xilenase enzymes on broiler chick's growth performance and gastrointestinal tract characteristics were fed by wheat and grain based diet. The results of enzyme's effect on digestion system on day 28 showed that enzyme addition to wheat and grain based diet does not effect pancreas weight significantly. These results are consistent with the results of Zanella et al., (1999). Also treatments had no significant difference in comparative pancreas weight. Moreover the enzyme had no significant effect on abdominal fat, liver and gizzard comparative weight and duodenum, jejunum, ileum, cecum and colon length and comparative weight. These results are consistent with sell et al., (1996) and Alam et al., (2003) results.

Hassanabadi and Mahdipour Rabori (2009) studied the effects of herd density on chicks performance, some of blood metabolites and carcass characteristics, found that chicks density had no significant effect on total carcass weight percent and it's parts including breast meat to live weight and femur meat, wing, neck, back neck chine, liver, bile, gizzard, Proventriculus, breast, useable carcass, heart, bursa fabricius, spleen and Abdominal fat weight.

Brzóska et al., (1999), Karaoğlu and Durdağ (2005), Owens and McCracken (2007) reported that diets with Mannan oligosaccharide and prebiotic has no significant effect on broiler chicks gizzard weight.

konca et al., (2009) studied the effect of Mannan oligosaccharide and live yeast in diet on carcass characteristics composition and color of laying Hens and observed no significant effect on breast meat, femur meat, wing, liver, heart, gizzard, gut's parts and abdominal fat ($P>0.05$). Juskiewicz et al., (2006) showed that Mannan oligosaccharide addition to diet has the most effect on long term periods in above 0.1% dosage. These findings are similar to waldroup et al., (2003) and Blair et al., (2004). Yang et al., (2007) reported that Mannan oligosaccharide reduces gut and liver weight in broiler chicks. Mohamed et al., (2008) studied the effect of Mannan oligosaccharide on broiler chicks performance and carcass characteristics. They observed no significant difference in heart, liver, spleen, gizzard and bursa fabricius but there was a significant difference in abdominal fat.

Prebiotic TechnoMos addition to broiler chick's diet was useful because it could improve carcass quality in these birds. But the reason that why other factors, which were assessed in this experiment, were not effected relates to causes such as proper hygiene of cages, proper density in cages, absence of stress in herd (suitable management), chicks health and proper nutrition.

The reason for absence of a significant effect of prebiotics on reducing gut's length and comparative weight and digestion organs of birds, which is inconsistent with the results of this experiment, could be that probably high amount of non starch polysaccharides in corn and soya were not enough to produce a severe viscosity so that it prevents of digestion substance's moving in digestion system and thus stretch of gut's tissue

and hypertrophy, hyperplasia of different parts of guts in reaction to increased work of digestion system (Shirzadi et al., 2009)

For all observed changes, may be can not interpret correct logical and scientifically causes, since in most reports, carcass parts were reported by two different gram and percent units.

Generally it seems that probiotics effects are effected by bacteria species, circumstance of production, 1day chick quality, amount of pollution in breeding farm, diet's composition, nutrient shape and herd management (Timmerman et al., 2004). Thus prebiotics can be suitable replacements for antibiotics but commercial shape, products' quality, funny and bacteria species in product and many other factors are effective in prebiotics performance and their ability for replacing the antibiotics.

## 6. Conclusion

Finding of this research showed that in back neck chine weight, 1st treatment (0.1% Prebiotic) has the highest effect and 5th treatment (control) has the lowest effect. In wing ball weight, 5th treatment (control) has the highest effect and 4th treatment (0.25% Prebiotic) has the lowest effect. It should be noted that a significant difference was observed between treatments in these two characteristics ($P<0.05$). In other parts there was no significant difference between treatments but diets with prebiotic had better performance than control treatment as numeral the results showed in without feather carcass weight and full carcass weight, 3rd treatment (0.2% Prebiotic) had the highest amount between treatments. Also in empty carcass weight and breast meat and neck weight, 1st treatment (0.1% Prebiotic), 4th treatment (0.25% Prebiotic) and 2nd treatment (0.15% Prebiotic) had the highest amount respectively. In gizzard and liver weight, 3rd treatment (0.2% Prebiotic) had the highest amount and 5th treatment (control) had the lowest amount of effect. It should be noted that there was a significant effect between treatment in these two characteristics ($P<0.05$). There was no significant difference in heart weight between treatments but treatments with prebiotic had better performance than control treatment as numeral. Among them 3rd (0.2% Prebiotic) treatment had the highest heart weight between others.

According to the data from this research it can be concluded that using Prebiotic TechnoMos is desirable from economical and nutrition aspects, because this prebiotic had significant effect on back neck chine weight, gizzard weight and liver weight and even about characteristics which had no statistically significant effect on them, often improved them as numeral. It should be noted that 3rd treatment (0.2% Prebiotic TechnoMos) showed widest and most optimum effect. Considering the importance of afore said characteristics and the position of nutrition costs in poultry breeding and the observed effects from prebiotic TechnoMos on economic and nutrition characteristics, using prebiotic seems to be suitable. Also it should be noted that prebiotic TechnoMos has positive effects on bird's internal organs, because afore said prebiotic had significant effect on most of digestion system's organs and even about breathing system's urogenital system and other parts which had no statistically significant effect, often improved them as numeral. It should be noted that 3rd treatment (0.2% Prebiotic) had the widest and most optimum effect.

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