INTERNATIONAL JOURNAL OF SCIENCE AND NATURE

www.scienceandnature.org

THE POSSIBILITY OF IMPROVING THE PROPERTIES OF WHEAT FLOUR BREAD USING CINNAMON ANISE AND STUDY THEIR IMPACT ON SERUM LIPID BLOOD

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ABSTRACT
Cinnamon powder and anise powder were added to the baking mixtures with concentrations of (1, 2.5) % and (2.5, 3.5) % respectively, then the chemical analysis of wheat flour, cinnamon powder and anise powder. The percentage of moisture, fat, protein, ash, fiber and carbohydrates was in wheat flour (10.92, 0.2, 11.3, 0.01, 0.03, 77.54). In cinnamon powder the percentages were (7.72, 1.2, 11.2, 4, 37.45, 38.43). In the anise powder the percentages were (5.49, 12.1, 11.3, 6.00, 33.1, 32.01). In the biological experiment, feeding of mice with supported feed with cinnamon and anise caused a decrease in total cholesterol that comparison group decreased from 231mg/dl to 163mg/dl in cinnamon group and 171mg/dl in anise group, also decreased in triglycerides from 177mg/dl in control group to 157mg/dl in cinnamon group and 164 in anise group, also there was a significant decrease in low density Lipoproteins (from 159mg/dl in control group to 88mg/dl in cinnamon group and 97 in anise group, in addition the results explain increase the high density fatty proteins from 37mg/dl in control to 44mg/dl in cinnamon group and 41 in anise group, Finally a decrease in very high density lipoproteins rate from 35mg/dl in control to 31mg/dl in cinnamon group and 33mg/dl in anise group.

KEYWORDS: wheat flour bread, cinnamon anise, serum lipid blood.

INTRODUCTION

Bread is one of the most important food products, used since ancient times as a staple food in human civilizations, the bread industry has evolved according to consumer needs (Arzani, 2011), all people are similar in their eating to bread as an important and main food which is made mainly from wheat, which is one of the most important grains and used in Iraq by 75% of the total grain consumed (Alsaidi, 1983), the amount of bread eaten per person per day in developing countries is estimated 137-411g (Sexena and Haidas, 2004), Cinnamon plant belonging to the Lauaceae family is one of the famous plants, which are used as a flavor of food as well as to treat a number of diseases, cinnamon is a bark of tropical ever green tree that its origin is Sri Lanka but is grown in Southeast Asia, India and South America (Vangalapati *et al*., 2012) explained that the most important compounds constituent of cinnamon oil is a chemical compound called Cinnamaldehyde, which is the most important active substance and it has therapeutic properties as well as the compound Eugenol which has a calming effect, and other compounds that have therapeutic roles for a number of diseases such as diabetes through its effect on the secretion of insulin and stimulate the liver to absorb glucose. Anise is one of the most important spices belonging to the medicinal plants group and Apiaceae family; Anise seeds are used in the manufacture of perfumes, medical substances, food industries, cosmetics (Ross, 2001).

Medicinal plants used in traditional medicine since antiquity because they contain bioactive compounds to produce medicines and treat a number of infectious diseases, Cereals and fruits are considered to be major sources of natural antioxidants, which are resist and reduce the effect of free radicals to protect human health (Hong Wang *et al*., 1996). Many researches and studies are concerned with natural antioxidants of medicinal herbs, vegetables and spices because they are the best and healthy alternative compared with industrial antioxidants (Deker *et al*., 2008), due to health damage caused by prolonged consuming, the natural nutrients that contain antioxidants are the safest for human health (Dastmlchi *et al*., 2007), for this reason, the consumption of spices and aromatic plants has increased because they are natural sources of antioxidants as well as fruits, vegetables, tea and coffee (Basuny, 2004; Basuny *et al*., 2011).The addition of some spices and herbs to wheat flour can be as preservatives, flavor enhancers and a source of natural antioxidants (Bulleman *et al*.,1977; Lim *et al*., 2010). Many researchers have been conducted to study the chemical nature, polyphenols and antioxidant activity those found in medicinal herbs and spices and their effectiveness, importance as antibiotics to microorganisms causing diseases and oxidation (Atoui *et al*., 2005). (Dobraszczyk and Mogenstem, 2003) explained that spices and herbs are rich in fiber and phenolic compounds, so adding them to wheat flour may effect on the biological, physiological and chemical properties of food products .

MATERIALS & METHODS

Used materials

- Cinnamon bark powder purchased from local markets.
- Anise seeds purchased from local markets.
- Cinnamon bark grinding: Grinded by using Indian stone mill.

- Grinding of anise seeds: Grinded by using electric mill.
- Yeast bread of Turkish origin (*Saccharomyces Cerevisiae*).
- Imported Wheat Flour (Turkish type - Bechler).
- Salt (Nacl) iodinefree, sugar (sucrose), vegetarian oil (Turkish type-unat), full cream milk (Omani type-mudhish) purchased from the local market.
- Wheat bran from the Iraqi General Company for Grain Manufacturing.
- Minerals and salts (Dutch types) purchased from local markets.
- Animal fat (sheep tailed fat) purchased from local markets.

Chemical tests:

- Moisture percentage estimation: The moisture percentage of samples estimated according to standard method (19-44) AACC (2000) by drying the sample in an electric oven with temperature 105 / 3 hours.
- Determination of protein ratio: Total nitrogen ratio was estimated using Microcaldal method, as mentioned by Tawfiq and Al-Attar (2014). The weight of 0.2 was taken from the sample and then added 3 ml of concentrated sulfuric acid and 1.5 ml of pyrochloric acid and left for 16 hours with heat exposure until color change From the dark to the starter, and then complete the volume to 50 ml using distilled water and take from dilute 5 ml and placed in a glass tube of the Caldell device and add 5 ml of sodium hydroxide at a concentration of 10% on the sample and put the future and change the color from red to green then erased acid HCL standard 0.05 until return to red color.
- Nitrogen = (((50) Total dilute) / ((5) (diluted) × 0.014 × Hcl molar × Hcl Correct quantity (/) Sample weight (x 100 (% Crude protein in the sample =% nitrogen in the sample × 5.7.
- Ash percentage estimation: The percentage of ash was estimated according to standard method (08-01) AACC (2000) by placing 2 g of each samples in a ceramic jar and burned in incinerator with 600 until white ash was obtained.
- Fat percentage estimation: The percentage of fat was estimated according to the standard method A-O-A-C (1984) by using (Soxhelt device) with Hexane solvent.
- Raw fiber estimation: The raw fiber of the samples was estimated in the according to (1984, AOAC) method.
- Carbohydrates percentage estimation: The percentage of carbohydrates estimated after the collection of protein, ash, fat, fibers and moisture and subtract them from 100% the difference in the proportion represents carbohydrates rate according to Pearson (1970).

Biological experiment

Laboratory animals: Male rats (white Albino type BALB / e) obtained from the Biotechnology Center of the University of Nahrain. The rats used in the experiment ranged from 3-4 weeks old, were selected healthy and disease free and their weight (25-36) gm, were placed in plastic cages with dimensions (30 * 13) cm, The floor of the cage was furnished with wood bark, which is replaced every 3days, The experiment conducted at the animal field of Nahrain University, The temperature was between 22-25 with luminance 14 hours light, 10 hours darkness, the experiment lasted 60 days.

The rats supplied with feed and water throughout the experiment and weighed at the beginning of the experiment and at the end of each month by using an electronic balance.

The rats were divided into four groups

Positive standard group: This group included 10 rats that fed with the standard feed that shown in Table (1) for two months, the feed contained 20% animal fat.

Negative standard group: This group included 10 rats that fed with free animal fat feed throughout the two month throughout the experiment as shown in Table (2).

Bread with 2.5% Cinnamon treatment group: This group consists of 10 rats these fed by feed containing 20% animal fat (sheep tailed fat) with bread contained 2.5% cinnamon and as shown in Table (3).

Bread with 3.5% Anise treatment group: This group contains of 10 rats these fed with bread contained 20% animal fat (sheep tailed fat) with bread containing 3.5% anise. The rats feed was prepared as shown in Table (4).

TABLE 1: Components and its percentages of the rats feed

components	Positive standard treatment	Negative standard treatment	Bread with 2.5% cinnamon treatment	Bread with 3.5% Anise treatment
Crushed bread (gm)	54	69	54	54
Milk (gm)	12	12	12	12
Cellulose (gm)	4	4	4	4
Vitamins and salts (gm)	3	5	3	3
Sucrose (gm)	5	5	5	5
Corn oil (gm)	2	5	2	2
animal fat (sheep tailed fat gm)	20	-	20	20

The composition of basal diet (gm/100gm) according to A.O.A.C. (1990)

*The composition of different experimental hypercholesterolemia diets according to (Osman, 2001)

At the end of the experiment after 60 days the rats prevented from eating for more than 10 hours (Fasting) then anesthetize the rats by (chloroform), The abdominal cavity was opened from the lower abdomen to the pharynx, blood was withdrawn from the heart by syringe(???? ml) then blood placed in dry and sterile test tubes and kept for 30 minutes at room temperature then plasma separated by Centrifuge (3500 rpm) for 15 minutes and extract serum components and prevent contamination of microorganisms.

Biochemical analysis

Estimate level of total cholesterol in the plasma

Samples were analyzed by using enzymatic decomposition method of cholesterol that developed by (Spin react)

company according to the Allain (1974) method and the company's instructions.
1 - 10 microliters of plasma were taken and placed in a test tube
2- 10 microliters of standard solution placed in a second test tube.
3. 1mL of cholesterol detector was added to each tube with 1 ml of the cholesterol detector in a third test tube (Blank). The test tubes were shaken for 10 minutes at a temperature of 37 , then the values of absorbance tubes was read at a wavelength of 500 nm and the total cholesterol concentration was estimated in 100 ml of plasma according to the following equation:

Cholesterol concentration $= \frac{sample\ absorbance\ value}{standard\ solution\ value} *$ according to the following equation: 200 (standard solution concentration)

The normal cholesterol in the human plasma is less than 200 mg.100 ml^{-1} which is mentioned in the analysis.

Estimate plasma triglyceride levels:

This method of analysis is developed by the British company CTM (Young, 1995) and according to the company's instructions.
1- 10 microliters of plasma were taken and placed in a test tube.
2- 10 microliters of standard solution were taken and placed in a second test tube.
3 - 1ml of triglycerides detector was added to each of test tubes, and same quantity was placed in a third test tube (Blank).
4- The test tubes were shaken for 10 minutes at a temperature of 37 , then the values of absorbance tubes was read at a wavelength of 550 nm and the total triglycerides concentration was estimated in 100 ml of plasma according to the following equation:

Triglycerides concentration $\frac{sample\ absorbance\ value}{standard\ solution\ value} * 200\ (standard\ solution\ concentration)$

The triglycerides in the human plasma are 36 - 160 mg.100 ml^{-1}.

Estimating level of high density plasma lipoproteins (HDL): using a Kit Bio Merieux (France)

HDL $= \frac{sample\ absorbance\ value}{standard\ solution\ value} * 500$

Estimating the level of low density lipoproteins (LDL) and very low density lipoproteins (VLDL) in plasma: Burstein *et al*. (1970)

According to Mathematical equation of Fried, LDL and VLDL were estimated as follows:

VLDL cholesterol = $\frac{triglyceride}{5}$ (LDL cholesterol) = (Total cholesterol) – (HDL cholesterol + VLDL)

According to Friedewald *et al*. (1972).

Nutrition efficiency:

Increase in body weight = final weight - first weight (primary)

Feed efficiency ratio (FER)= $\frac{daily\ body\ weight\ gain\ (g)}{daily\ food\ intake(g)}$ x 100

BWG = daily body weight gain (g)
FER = feed efficiency ratio
FI = feed intake
According to Chapman *et al*. (1950)

RESULTS &DISCUSSION

Chemical composition of wheat flour, cinnamon bark flour and raw anise flour

Table 2 shows the values percentage of moisture, protein, fat, fiber, ash, and carbohydrates for imported wheat flour (10.92, 11,30, 0.20, 0.03, 0.01, 77,54), from the table above, the proportion of protein was at the rates mentioned by Hammer (1991) which divided the wheat flour according to its protein content to four groups: 14-16% strong, 11-13% medium strength, 8-10% weak and 7-9% very weak for good wheat flour for baking industry, the table itself shows the values of moisture, protein, fat, fiber, ash and carbohydrates of cinnamon and anise, (7.72, 11.20, 1.20, 37.45, 4.00, 38.43%) in cinnamon powder and (49, 5, 11,30, 12,10, 33,10, 6,00, 32,01) % in anise powder respectively. We note the high percentage of fiber (37.35, 33.10) compared to wheat flour (0.03). We also note the high values of ash for cinnamon and anise, 6%), respectively, compared with wheat flour (0.01%) Arne with wheat flour as they were (7.72, 5.49%) compared to wheat flour (10.92) and the table shows that the protein percentages were close in the studied material, also the results show a high percentage of fiber (37.45, 33.10) % compared with wheat flour (0.03) ,the values of ash in cinnamon and anise were high values 4% and 6%, respectively, compared with wheat flour (0.01%). the moisture in cinnamon and anise powder was lower than wheat flour moisture, which was (7.72, 5.49%) respectively, compared with wheat flour moisture (10,92 %) The table shows that the protein ratios were close in the studied materials; finally, it was clear that the protein ratios were similar in the studied samples.

In a study conducted by Hussein *et al.* (2014) on the chemical composition of wheat flour and anise powder they find that the values percentage of moisture, protein, fat, fiber, ash and carbohydrates was (12.56,11.65,1.22, 0.46, 0.51, 86.16) % (6.54, 14.83, 17.89, 22.16, 6.6, 38.52)% respectively,

In another study conducted by Mohmoud *et al*. (2004), they find the ratios of each of protein, fiber, ash, fat and carbohydrates in cinnamon was (7.86, 21.23, 2.15, 0.95, 51.72%) %.

TABLE 2: Chemical composition of wheat flour, cinnamon barks flour and raw anise flour

treatments	Moisture %	Protein %	Oil %	Fibers %	Ash %	Total Carbohydrates
Cinnamon bark powder	7.72	11.2	1.2	37.45	4	38.43
Raw anise powder	5.49	11.3	12.1	33.1	6	32.01
Turkish wheat flour	10.92	11.3	0.2	0.03	0.01	77.54

TABLE 3: Effect of bread containing cinnamon and anise on rat weights and final weight average

treatment	Primary weight average(gm)	final weight average (gm)	Average of weight increase after 60 day (gm)
Treatment 1	25.4	31.12	5.72
Treatment 2	36.0	39.00	3.00
Treatment 3	33.6	35.37	1.77
Treatment 4	34.8	36.00	1.20
L.S.D = (P<0.05)*	5.314*	4.962*	1.886*

Nutritional Indicators and Biological Analysis of experiment rats

Table 3 shows the effect of bread containing cinnamon and anise in the average of rats weight increase during experiment period 60 (day), the highest increase in rats weight average obtained from positive control (treatment 1) with a final weight 31.12 g and the final increase average was 5.72 g , while the weight average of negative control (treatment 2), was 39 g and average of final increase was 3.00 g, while the treatment 3 (cinnamon 2.5%), gave final weight (35.37) g and the average of weight increase (1.77)g, the treatment 4 (anise 3.5%), gave final weight 36.00 g, by increase 1.20 g .

The results of Table (13) indicate that the treatment 1 gave the highest increase of weight, this increase may be due to use a feed (high-fat 20%) as well as the components of the feed were standard components containing milk, salts, vitamins, sugars and starch so its effect was good, followed by a group (2) which fed on a good feed that consists of protein, sugars, vitamins and salts, but it is free of (animal fat 20%) therefore gave a few increase compared with treatment (1).

The treatments 3 and 4 gave the lowest weight gain 1.20 g while third group treatment (3) gave the lowest weight and 1.77 grams, the results showed that cinnamon and anise had an effect in reducing the weight of rats but the effect of cinnamon was higher than the anise and all the treatments were significant at 0.05.

This is in agreement with results of (Al-mamoori, 2015), which added bread containing thyme, sumac and carob in rats feeding. Aboelnaga (2015) also used cardamom, carnation and anise in rats feeding; there was a decrease in rat's weight compared with positive control.

Effect of bread containing cinnamon and anise in rat livers weights:

Table 4 shows the effect of bread containing cinnamon and anise in rat's livers weights, the liver weight average of positive standard group (1) was 2.90g. while negative standard group (2) was 2.248 g, in group 3 (cinnamon group) the liver weight was 2.35 g and in the fourth group 4 the liver weight was 2.76 g, the results showed that there were significant differences between treatment 3 and treatment 1 only, while there were no significant differences between treatment 3 and treatment 2, there was also a significant difference between treatment 4 and negative control treatment, However, the ratio of liver weight to body weight showed that there were significant differences between the first positive group 1 which gave the highest values 9.3g and 5.7g obtained from the negative standard group that is free of animal fat (treatment 2), the other groups, the group of treatment (3) gave 6.6g and the group of treatment (4) gave 6.2g.

El-yamani (2011) reported that the addition of anise to rats feed reduced the liver in experimental animals (rats), in addition, Aboelnaga (2015) used cardamom, carnation and anise in rats feeding, there was a significant decrease in the weight of rats livers when fed on spices compared with positive control, in study conducted by (Karim *et al*., 2009) find that fed rats with a feed containing Iraqi local garlic, there was a significant decrease in rats livers.

TABLE 4: Effect of cinnamon and anise on average of liver weight and its ratio to body weight of rats.

treatment	Average of liver weight (gm)	Ratio of liver weight to body weight %
Treatment 1	2.900	9.3
Treatment 2	2.248	5.7
Treatment 3	2.353	6.6
Treatment 4	2.761	6.2
L.S.D (P<0.05)*	0.449*	2.071*

Effect of bread containing cinnamon and anise in average of spleen weight and its ratio to body weight of rats:

Table 5 shows the effect of cinnamon and anise in the spleen weights, the weight average of the spleen in the positive standard group (treatment 1) was 0.317g while the negative standard group (treatment 2) gave 0.358g, the groups that used cinnamon and anise (treatments 3 and 4) the treatment 3 gave 0.204 g and the fourth group (treatment 4) gave (0.384) g.

The addition of both cinnamon and anise to bread in treatment (3) and (4) did not give a significant difference compared with the positive standard control treatment, whereas the ratio of spleen weight to the body weight recorded the highest values in positive standard control group (1) 1.01 g, The negative control (treatment 2) gave 0.91g while groups (3) and (4) the treatment (3) gave 0.57 g and treatment (4) gave 1.06 g.

The spleen is one of the indicators in the immune system as a member of an important in lymph and immune system (Holger & Lothar, 2000). This study in agreement with result of (El-yamani, 2011) they confirmed that cinnamon, ginger and cardamom lead to a decrease in spleen weights compared with positive group, there is significant differences in the ratio of spleen weight to body, (Karim *et al*., 2009) confirmed that there were no significant differences at level (0.01) in the spleen weights of rats that fed on the garlic.

TABLE 5: Effect of bread containing cinnamon and anise in average of spleen weight and its ratio to body weight of rats.

treatment	Average of spleen weight (gm)	Ratio of spleen weight to body weight %
Treatment 1	0.317	1.01
Treatment 2	0.358	0.91
Treatment 3	0.204	0.57
Treatment 4	0.384	1.06
L.S.D (P<0.05)*	0.188	0.397*

Effect of bread containing cinnamon and anise in verage of kidneys weight and its ratio to body weight of rats:

Table 6 shows the effect of cinnamon and anise in kidney weights of rats, the average of kidneys weight in the positive standard group was 0.631g. The negative standard group gave kidneys weight 0.659g.

The other groups , group (3) which is cinnamon treatment gave 0.525 g and the fourth group (anise treatment) gave 0.770 g, the anise effect on the weight of the kidneys is higher than cinnamon, while the ratio of kidneys weight to the body weight, the increase percentage of positive control group was (2.02%) and the increase percentage negative control group was 1.68%.concerningtherapeutic groups, the cinnamon group treatment (3) gave 1.48%, while the group of anise treatment (4) gave 2.13% and it was noted that there were significant differences between the cinnamon group treatment (3) compared with positive control groups, while noting that there are significant differences between Anise group treatment (4) and positive control treatment (1) at (0.05).

El-yamani (2011) explained that ginger, cinnamon and cardamom herbs resulted in a decrease in the kidneys weights of rats compared to the positive control group, as well as Alboelnaga (2015) showed that adding cardamom, carnation and anise to rats feed led to a decrease in kidney weight compared with control treatment.

TABLE 6: Effect of bread containing cinnamon and anise in average of kidneys weight and its ratio to body weight of rats:

treatment	Average of kidneys weight (gm)	Ratio of kidneys weight to body weight %
Treatment 1	0.631	2.02
Treatment 2	0.659	1.68
Treatment 3	0.525	1.48
Treatment 4	0.770	2.13
L.S.D (P<0.05)*	0.264*	0.427*

Effect of bread containing cinnamon and anise in fat level in blood of rats:

Table 7 shows the effect of the addition of cinnamon and anise to rats feed in the lipid and cholesterol levels in used groups after 60 days, the highest concentration of plasma cholesterol level was (231) mg/ 100 ml in the first group (treatment 1), while in positive standard control (treatment 2) the cholesterol level in plasma was (184) mg/ 100 ml, also the level of cholesterol in treatment (3) was 163 mg /100 ml, while the concentration of cholesterol was 171 mg/ 100 ml in treatment (4), From the results of the same table, there is a significant difference among therapeutic groups and the positive standard control group, We note that cinnamon had a clear role in reducing cholesterol in plasma, as well as anise plays a large role, These results are in agreement with results of El-yamani (2011), the rats were fed by ginger, cardamom and cinnamon individually or with each other, there was a significant reduction in total cholesterol, which is similar to our study because there are significant differences.

The results of the table show the effect of cinnamon and anise in levels of triglycerides, treatment (1) (positive standard control) gave the highest concentration of triglycerides in the plasma, 177 mg / 100 ml, then negative standard control group (treatment 2) gave 174 mg / 100 ml, then anise group treatment (4) was 164 mg / 100 ml, while the last group (cinnamon group) gave lowest concentration of triglycerides in plasma (treatment 3) that was 157 mg / 100 ml.

The results showed no significant differences of cinnamon treatment group (3) compared with negative and positive control as well as there is no significant differences between anise treatment group (4) with negative and positive control.

The level of high density lipoproteins (HDL) in plasma was highest in the treatment group (3). 44 mg/100 ml followed by the anise group (4) with high density lipoproteins (HDL) 41 mg / 100 ml, then 39 mg / 100 ml obtained from negative standard control group (treatment 2) finally the positive standard group (treatment 2) that gave 37 mg / 100 ml.

The results showed that there were significant differences (0.05) between treatment 3 and treatment 1 only these results were in agreement with results of El - Yamani (2011), who noted that the addition of cardamom, cinnamon and ginger to rats feed had a significant effect in HDL level in plasma compared to Control group, also the level of low-density lipoprotein (LDL) in the plasma, the highest concentration obtained from the positive standard group (treatment 1) which fed on feed contains animal fats 20% that was 159mg /100 ml while the negative standard control group (treatment 2) gave 110 mg / 100 ml, but therapeutic groups (3) and (4) showed a significant decrease in LDL level 88 mg / 100 ml for treatment group (3), as for the fourth treatment group (anise) showed a significant decrease 97 mg / 100 ml, these results indicate that there are significant differences between the treatments (0.05) and these results are in agreement with results of EL -Yamani (2011), There were significant differences (0.05) between the positive standard group of control and the groups of ginger, cinnamon and cardamom that used by this researcher.

The level of very low density lipoproteins (VLDL) was highest concentration in positive standard control group 35 mg /100 ml and the negative standard group gave the same level 35 mg / 100 ml while the therapeutic groups gave 31 mg /100 ml for the third group of cinnamon, while the fourth group of anise, gave 33 mg /100 ml, Noting that all the differences are not significant.

In addition, the researcher Mohammad (2015) used Chinese cinnamon (*Cinnamon Cassia*) by alcohol extracting method to be effective in controlling the level of sugar in the blood as well as on blood lipids in experimental rats, Aboelnaga (2015) also used levels of cardamom, carnation and anise that had effect in blood lipids like triglycerides, cholesterol, LDL and HDL, when cholesterol was reduced from 181 mm / 100 ml to 139 mm /100 ml by using the cardamom and 341 /mm / 100 ml and 129 mg /100 ml by using anise as well as triglyceride from 90 mg / 100 ml to 56 mg /100 ml by using cardamom and to 51 mg /100 ml by using carnation leaves and 53/100 ml by using anise sauce as well as HDL high-density lipoprotein from 20 mg /100 ml to 36 mg /100 ml with using cardamom, and 38 mg /100 ml with using carnation and 34 mg /100 ml by using anise sauce, also LDL gave a significantly decreased from 142 mg /100 ml for control treatment to 92 mg / 100 ml and 80 mg /100 ml with using carnation treatment and 88 mg /100 ml in anise treatment, as well as VLDL decreased from 18 mg /100 ml in control treatment to 11 mg /100 ml in treatment of cardamom, and 10 mg / 100 ml in carnation treatment and 10 mg /100 ml in anise treatment.

TABLE 7: Effect of bread containing cinnamon and anise in level of fat in the blood of rats (biological experiment)

treatment	Cholesterol mg/dl	Triglycerides mg/dl	HDL high density lipoproteins mg/dl	VLDL very low density lipoproteins mg/dl	LDL low density lipoproteins mg/dl
1	231	177	37	35	159
2	184	174	39	35	110
3	163	157	44	31	88
4	171	164	41	33	97
L.S.D (P<0.05)*	37.55*	25.74	5.62*	4.86	31.75*

Table 8 shows the effect of cinnamon and anise in BWG, intake of feed (FI) and feed efficiency ratio (FER), the positive standard control group (treatment 1) gave increase rate of 0.095 g / day in (BWG) compared to the amount of feed intake (FI) 2.91 g / day and the feed efficiency ratio (FER) that was 3.25% Then negative standard control group that gave, 0.05g /day for feed intake 2.09g / day and efficiency ratio 2.39%, followed by cinnamon and anise treatment groups which gave lowest weight increase as well as the efficiency of feed, the third group (cinnamon treat), gave weight increase 0.029 g/ and amount of feed intake reached 3.575. g/ day and the feed efficiency ratio of 0.81. while anise group (treatment 4), gave a weight gain 0.02 g / day, and 3.44 g / day of feed intake, and 0.58% of nutrition efficiency ratio, from these results, we conclude that the use of herbs such as cinnamon and anise have had a significant impact in weight loss, also the results of all treatments were significant (0.05), which is shown in Table (21), this study is in agreement with results of El-yamani (2011), who use the herbs of cardamom, ginger and cinnamon in a similar study.

TABLE 8: Quantity of feed and nutrition efficiency

Treatments	Weight increase gm/day (BWG)	Quantity of feed intake gm/day (FI)	Nutrition efficiency (FER)
1	0.095	2.91	3.25
2	0.05	2.09	2.39
3	0.029	3.57	0.81
4	0.02	3.44	0.58

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