How to Cite:
Gassad, S. H., & Fajer, A. N. (2022). Study of the comparison between the effect of E122 dietary dyes and silver nanoparticles extracted from the capparise spinosa plant at the level of fat in male rats. *International Journal of Health Sciences*, *6*(S4), 11022–11028. https://doi.org/10.53730/ijhs.v6nS4.11386

Study of the comparison between the effect of E122 dietary dyes and silver nanoparticles extracted from the capparise spinosa plant at the level of fat in male rats

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***Abstract*---**Carmoisine is a type of azo dye, which is widely used in ice cram, soft drinks, sauces and with sweets and others . This study is designed to determine the effect of carmoisine dye (E122) on certain male rat vestal criteria ,including measuring the effectiveness of lipid profile (cholesterol levels .Triglycerides and high-density HDL fatty profile and low –density LDL).The current study showed that there was an increase in the level of fat (Ch,TG,LDL) in the group of E122 injecting animals but it was observed that there was amoral reduction in the HDL level compared to the group of controlling animals and AgNPS animals

***Keywords*---**Carmoisine, lipoprotein (CH, LDL, HDL, TG), food dye.

Introduction

Food additives are substances that are used in the food industry to maintain color, quality, alkali or acidity[1]. In recent years, after the significant development in the food industry, marketing and increased consumption , it has become necessary to add a lot of chemicals to it , such as preservatives, dyes and flavors that increase their nutritional value and taste, as marketing tool [2,3,4] .Food dyes are important additives for food and medicines, being widely used and with more than 2,500 species at an annual production rate of more than 8 million tons .These pigments may be either natural or artificial in source as 95% of the dyes used in recent years are due to artificial food dyes because of their cheap price and ease of production [5] .Food dyes have along

been added to many basic food such as cheeses, meat products, ice cream and sweet [7,6].lipoprotein are defined as molecules consisting of fat that are not dissolved in water and are surrounded by layer of protein to from fatty proteins (fatty complexes and protein) and are dissolved in water, and move quickly and easily into the bloodstream where they contribute to the transfer of fate to different parts of the body in the water medium[8]. Lipoprotein are classified by density into low –density lipoproteins LDL,highly density lipoproteins HDL,cholesterol Ch, ,Triglycerides TG,and each type contains varying proportion of protein and dispaferous fats,ch,tg.Eech type of protein has physiological, chemical significance when present in the body[9].

Aim of the study:

- Study of fats Standards Cholesterol Ch ,low density lipoprotein LDL,high density lipoprotein HDL, Triglycerides and its effects in male Rats.
- study the effect of carmoisine dye on some lipoprotein in male Rats (Ch,HDL,LDL,TG).

Materials and methods

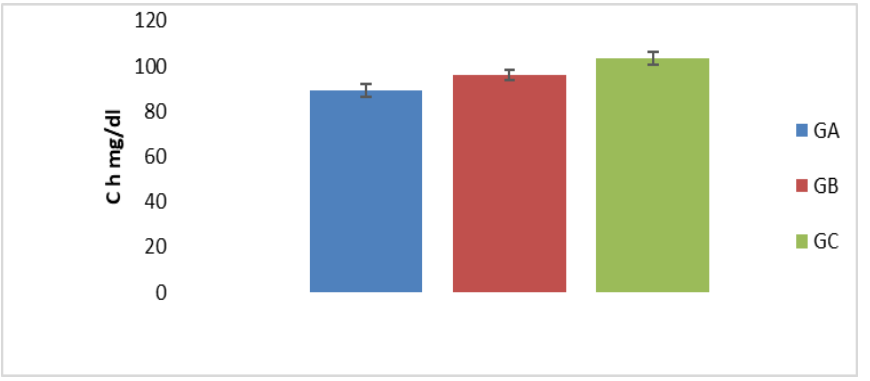
Determination of cholesterol(Ch)of serum
Determination by using BioSytems Kit [10]
Determination of Triglycerides (TG) of serum
Determination by using BioSystems Kit [11,12]
Determination of high density lipoorotein (HDL) of serum
Determination by using BioSystems Kit [13,14]
Determination of low density lipoorotein LDL) of serum
Determination by using BioSystems Kit [15]

Results and Discussion

Determination of the level (Ch)of serum

The results of the Present study in the Table(1) showed amore rise($P \leq 0.05$) in the level of Cholesterol in group treated with dye E122(G_A) compared with each of the control group G_B,and the group of animals given silver nitrate and extract G_C as ashown in the figure(1),where an increase was observed in the group containing the dye E122 compared with animals containing silver nitrate and extract recorded decrease($P \leq 0.05$)and the reason may be due to the increase in oxidative stress that results from the metabolism of the pigment, which affects the activity of enzymes involved in converting cholesterol to bile acids by the enzyme cholesterol 7α hydroxylase,thus increasing the level of cholesterol[16,17]. Table(1) the level Cholesterol (Ch) in male Rats.

Group	Mean(mg/dl)	S.E
G_A	89.3	± 2.7
G_B	96.1	± 2.4
G_C	103.2	± 2.8



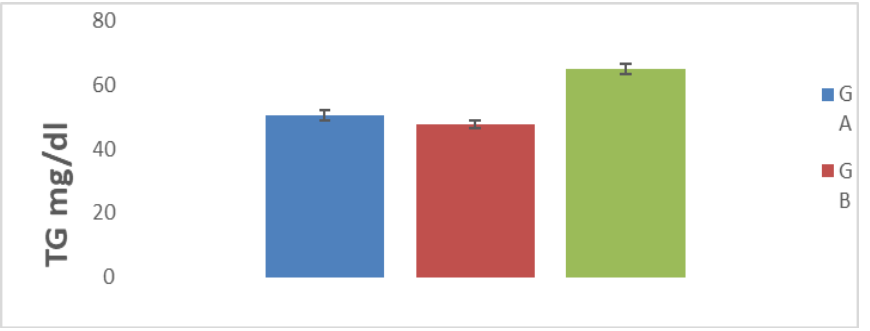
The figure shows (1) the effect of the dye E122on the level of Ch in the blood serum of male Rats.

Determination of the level (TG) of serum

The result showed in the table(2) amoral rise(P≤0.05)in the level of triglycerides in the group of in the dye-induced E122 (G_A) compared to the group of control animals G_B and the group of animals given silver nitrate and extract G_C as shown in the form(2) as well as the effect of dye on the triglycerides and the table shown amoral increase (P≤0.05) is observed in the level of triglycerides that containing food dye E122 compared to the group of control G_C and group animals that containing of silver nitrate G_B.The my be reason for the increase is the presence of metabolism of the pigment ,and this leads to a reduction in the decomposition of glycogen causing this increase in the group infected with the dye E122[18]

Table(2) the level of TG in Rats male.

Group	Mean(mg/dl)	S.E
G_A	50.5	± 1.7
G_B	47.7	± 1.2
G_C	64.9	± 1.6

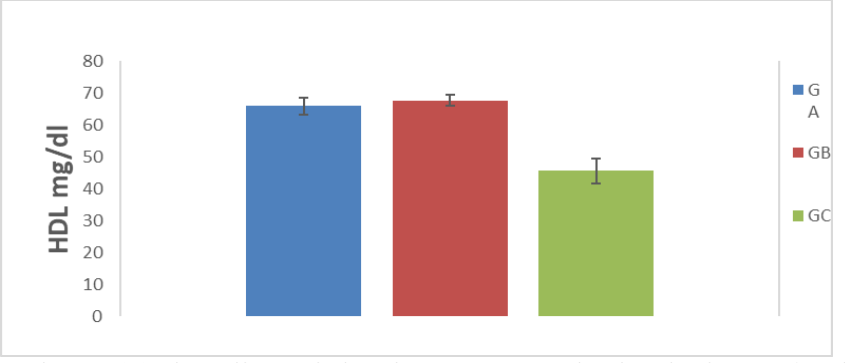


The figure shows (2) the effect of the dye E122on the level of TG in the blood serum of male Rats.

Determination of the level (HDL) of serum

The results of the study shown in the table(3) showed a moral decrease (P≤0.05) in the HDL level in the group infected with the dye E122 G_A compared to the control group G_C and the group of silver nitrate and extract as shown in the figure (3)of giving E122 dye at the level of HDL leads to (P≤0.05) compared to the control group of the silver and extract may be due to the free radical resulting from E122 metabolism and thus increase the oxidative stress and thus reduce the effectiveness of lipoprotein lipase [19,20] and may be due to the decrease in the level of high lipoprotein to the intake of dietary dyes and this leads to an increase in the condition of oxidation by producing a large amount of free radicals when they are damaged in the intestines and in your mind lower the level of HDL and increase thelevel of Cholestrol[21,22]. Determination level HDL in male mice blood serum Table(3).

Group	Mean(mg/dl)	S.E
G_A	66	± 2.7
G_B	67.7	± 1.8
G_C	45.6	± 3.9

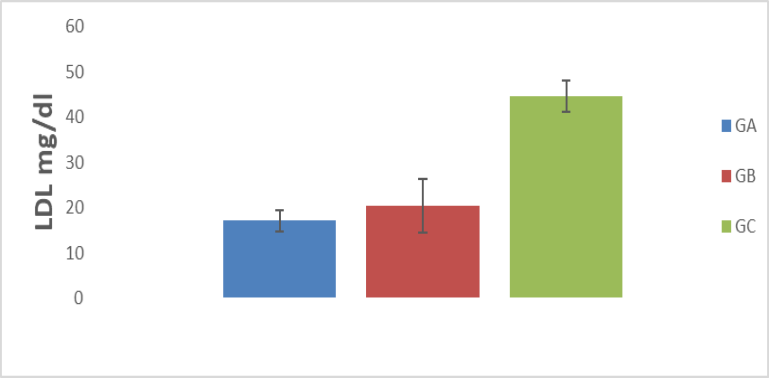


The figure shows (3) the effect of the dye E122on the level of HDL in the blood serum of male rats.

Determination of the level (LDL) of serum

The results shown in the table (4) showed amoral rise in the low lipoprotein level LDL (P≤o.05) in the group given the dye E122 (G_A) compared to the group of animals control (G_C) and the group of animals containing of silver nitrate and extract (G_B). As shown in the figure(4), the effect of dye on the low lipoprotein level LDL showed the results shown in the table a moral increase (P≤0.05) at the LDL level compared to the control group and the total given silver nitrate and extract. Maybe it's due to an increase in the free radicals from the pigment metabolism that causes it to break down the low lipoprotein level LDL [23] .
Determination level LDL in male mice blood serum Table(4).

Group	Mean(mg/dl)	S.E
G_A	17.1083	± 2.39092
G_B	20.441	± 8.68202
G_C	44.6603	± 3.411



The figure shows (4) the effect of the dye E122on the level of LDL in the blood serum of male Rats.

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