



Study the effect of chamomile on hyperlipidaemias in Guinea pigs

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Abstract:

In this study used (40) guinea pigs males Divided into Two 2 group and this Two groups Divided into Two sub groups .

The Effect of 5% aqueous of matricaria chamomile (5ml/kg) on Cholesterol and triglyceride level was studied in normal and hyperlipidemic guinea pigs .

(20) guinea pigs food with high Cholesterol and divided into Two groups .

And the (20) guinea pigs which give food normally and also divided into two group

Group (A) of control without treated with chamomiles and group (B) control treated with chamomiles . So the group which given chamomiles (B) control and (D) high level of serum Cholesterol . and (A) control and group (C) high level cholesterol serum do not treated chamomiles .

The group (B , D) treated orally 15 days with aqueous extract of chamomile reduced significantly the serum Cholesterol level of the hyperlipidemic guinea pigs when compared with their controls.

Key word: guinea pigs, chamomile extract.

دراسة تأثير مستخلص البابونج على الدهون الموجود في دم خنازير غينيا

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الخلاصة:

لقد تمت دراسة تأثير مستخلص البابونج 5 % بنسبة (5 ملل /كغم) على نسبة الدهون الموجود في دم خنازير غينيا . تم استخدام أربعون خنزير غينيا وكانت من الذكور وقسمت إلى أربعة مجاميع في كل مجموعة (10) خنزير المجموعة رقم (B , A) أطعمت غذاء غنياً بالكولسترول.

أما المجموعة (D , C) فقد تم تغذيتها طعام عادياً . المجموعة (D , B) ثم إعطائها مستخلص البابونج لمدة (15) يوم أما المجموعة (C , A) لم يتم إعطائها المستخلص . تم قياس نسبة الكولسترول ، الشحوم الثلاثية في المجموعة (D , B) حيث وجد إن العلاج بالبابونج قد خفض نسبة الكولسترول معنوياً في خنازير غينيا التي بها نسبة الدهون عالية عند مقارنتها بخنازير عالية نسبة الدهون الغير معالجة أما الدهون الغير مشبعة فإن العلاج بالبابونج لم يقللها بنسبة معنوية.

Introduction:

Chamomile is one of the most widely used medicinal plant . It was recommended as analgesic , antipyretic , diuretic ,

antimicrobial , antitussive and antispasmodic agent(1,2 ,3 ,4) . Hyperlipoproteinaemias is a condition in

which the concentration of cholesterol and triglyceride carrying lipoproteins exceeds and arbitrary normal limit (5) this condition is associated with clinical problems because it can accelerate the development of atherosclerosis (6, 7). to reduce the risk of atherosclerosis that accompanies hyperlipoproteinaemias and reduction in the concentration of lipoproteins has been recommended (8). Dietary control of hyperlipidemic symptoms is an alternative to drugs (9). medicinal plants have been previously used as hyperlipoproteinemic agents(10).

Material and methods:

Forty male guinea pigs. Hyperlipoproteinemic was induced experimentally in twenty guinea pigs by feeding them with high cholesterol diet (cholesterol 2%) margarine 40%, wheat flour 40%. For twelve weeks (6, 8).

The other twenty guinea pigs it is given ordinary diet and served as controls. These two group of guinea pigs (A, B) and (D, C) Group (a) and (c) not treated with extract of aqueous chamomile. and The group (B, D) treated with daily for 15 days with 5% aqueous extract of matricaria chamomile (5ml/kg) that was given orally by intra gastric tubes.

Blood was obtained from all groups of serum was taken for triglyceride estimation by enzymatic method using the reagent triglycerides enzymatiques 250 (

biomerieux). And cholesterol estimation by the Liebermann bur chard method.

Static t. Test (two – tailed) was utilized for data analysis – $P < 0.05$ was considered statistically significant.

Results:

Fig I. illustrates that feeding guinea pigs with high cholesterol diet had significantly elevated the serum cholesterol and triglyceride levels. The serum cholesterol level was significantly higher in the hyperlipidemic untreated guinea pigs group (C) compare to the control untreated group (a). ($P < 0.001$). treatment of the control with 5ml/ kg of 5% aqueous extract of chamomile had slightly reduced the serum cholesterol level compared with control 2 untreated guinea pigs.

The chamomile treat of hyperlipidemic group (D) exhibited a significantly lower serum cholesterol level in comparison with hyperlipidemic untreated group (C) ($P < 0.001$). treatment of the control with 5ml/kg of 5% aqueous extract of chamomile had slightly reduced the serum cholesterol level compared with control untreated guinea pigs.

The chamomile treated hyperlipidamic group (D) exhibited significantly lower serum cholesterol level in comparison with hyperlipidemic untreated group (C) ($P < 0.001$).

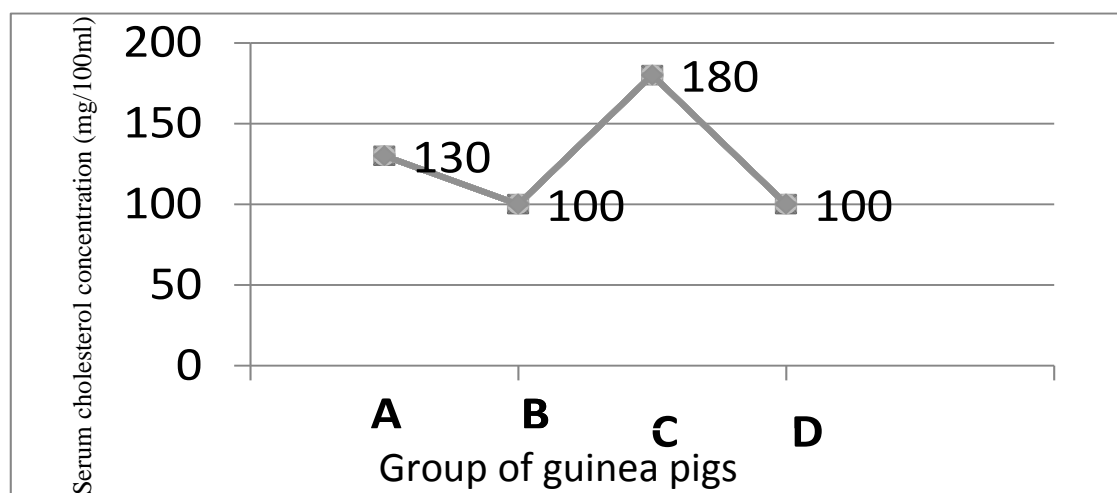


Fig 1: The effect of chamomile treatment (5ml/ kg of 5% aqueous extract) on serum concentration of control guinea pigs and hyperlipoproteinemic guinea pigs .

A- Control .

B- Control treated .

C- hyperlipoproteinemic .

D- hyperlipoproteinemic treated guinea pigs .

Fig (2) Shows that the serum triglyceride level was significantly higher in the hyperlipidemic untreated guinea pigs group (C) compared to the control untreated group (A) ($P < 0.001$) . treated with extract of chamomile had slightly reduced

the triglyceride level of the hyperlipoproteinemic group treated with chamomile (D) was compare with that of the untreated hyperlipidemic group (C) . but this was not statistically significant.

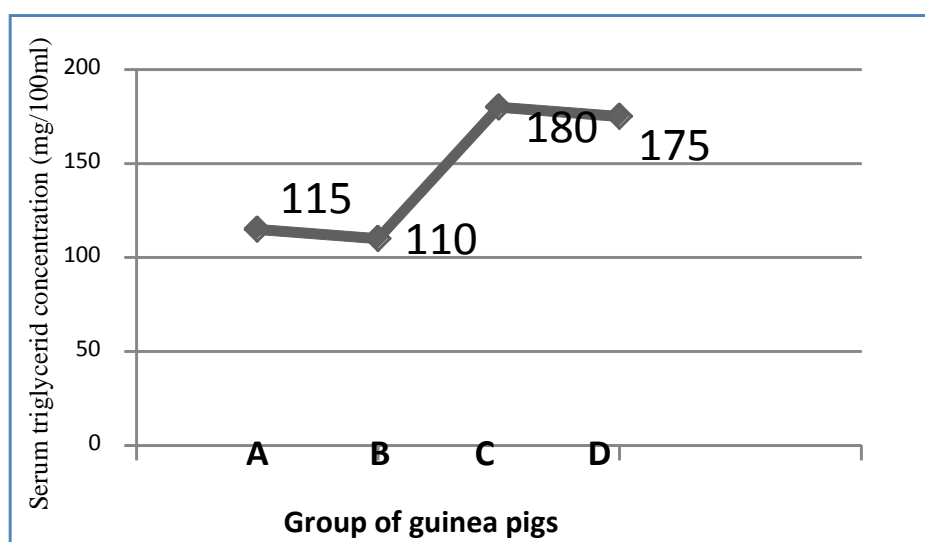


Fig 2 : The effect of chamomile treatment (5ml/ kg of 5% aqueous extract) on serum triglyceride concentration of control group and hyperlipoproteinemic group .

Discussion :

In the research show the treatment with the extract of chamomile significantly reduced the serum cholesterol level in the experimental guinea pigs . Matricaria chamomile contains a high concentration of the essential oil of chamomile (11) . it has been proposed by many investigators (12) . the hyperlipoproteinemias need long term with drugs which lower the lipid level . prolonged treatment with these drugs can causes serious side effect (12) . The medicinal plants with hyperlipoproteinemic effect are more appropriate . as an initial therapeutic measure in hyperproteinemias the patient is placed on a diet low in cholesterol and saturated animal fats and relatively high in polyunsaturated vegetable oils. This dietary control may be adequate to reduce significantly the concentration of plasma low density lipoprotein (LDL) cholesterol (13) . similar results were reported with cornflower and sunflower oil (14) . and essential oil of onion and garlic (15 , 16) . The mechanism of the dietary control was suggested to be by influencing absorption and transport of cholesterol or by influencing synthesis and catabolism of sterol (17) cholesterol level can be influenced by lowering the plasma concentration of (LDL) . polyunsaturated fatty acids appear to act by inhibiting cholesterol synthesis in the liver which in turn triggers the compensatory increase in the synthesis of hepatic (LDL) receptor and thereby cause a reduction in the concentration of plasma (LDL) (17) .

Therefore , the present results would support that the reeducation of cholesterol level by treatment with the extract of chamomile may be related to the presence of high concentration of the essential oil chamomile that may affect the synthesis or absorption or catabolism of sterol .

Treatment with chamomile did not affect the control guinea pigs because this level is already too low to be reduce . and it is known that even with cholesterol lowering

agents plasma cholesterol level does not go lower than as pacific level (18) .

The extract of chamomile apparently did not increase the activity of lipoprotein , an enzyme which enhances the rate of intravascular catabolism of very low density lipoprotein (VLDL) and intermediate , density Lipoprotein (IDL) to (LDL) Low density Lipoprotein (19). Thus the (VLDL) triglyceride concentration was not lower by chamomile treatment (20).

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