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Research Article

Effect of Crude Aqueous Extracts of Some Medicinal Plant Flowers on Solid Ehrlich Tumor in Mice.

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Abstract

Crude aqueous extracts of Cynara Cardunculus, Achillea millefolium, Calendula officinalis and Matricaria chamomilla flowers belong to family Compositeae were used in this work to study their efficiency to relief solid ehrlich tumor in mice. The more effective extract was C. officinalis which decreased tumor size from 513.6 to 139.8mm at a dose of 200mg/kg body weight comparing with doxorubicin which reduced tumor size to 98.2mm in concentration of 15mg/kg after 21 days, followed by M. chamomilla which showed the mean value of 168.7mm. While, the lowest values were showed with C. cardunculus and A. millefolium flowers extract which were 198.7 and 223.5mm, respectively. Also, the more effective treatments were doxorubicin in concentration of 15mg/kg and C. officinalis, followed by M. chamomilla, C. cardunculus and A. millefolium flowers extract for blood tests in tumor mice, e.g. antioxidant markers (MDA, TAC, SOD), liver functions (ALT, AST, Total proteins, Albumin and Globulins), kidney functions (Creatinine and Urea) lipid profile (triglycerides, total cholesterol, HDL, LDL and vLDL) and haematological parameters (HB, RBCs, Plt and WBCs) comparing with control tumor mice at a dose of 200mg/kg body weight for 21 days.

Keywords: *Medicinal, Plants, Solid, Ehrlich, ascetic, tumor*

Introduction

The solid ehrlich ascitic tumor derived from a spontaneous murine mammary adenocarcinoma maintained in the ascetic form by passages in Swiss mice, by weekly transplantation of Ehrlich Ascitic Carcinoma (EAC) cells (0.2 ml of 1×106) i.p. cells/mice, (Dagli *et al.,* 1992).

Doxorubicin is one of the most frequently used anticancer drugs. It is used for the treatment of different haematopoietic and solid cancers such as breast cancer, osteosarcomas, aggressive lymphomas and leukemias. It has the ability to intercalate between the DNA strands and hydrolyzes them in a nuclease like manner (Fornari *et al.,* 1994 and Lentacker *et al.,* 2010).

Nascimento *et al.,* (2006), found that medicinal plants contain flavonoids and terpenoids product which have diverse pharmacological properties including antioxidant and cancer chemo preventive effects.

Globe Artichoke (*Cynara Cardunculus*) is widely used as food and medicine in folk medicine. Artichoke flowers and leaves extract has shown antioxidant, antibacterial, anti-HIV, bile-expelling, hepatoprotective, urinative and choleretic activities, as well as the ability to inhibit cholesterol biosynthesis and LDL oxidation (Christaki *et al.,* 2012). Artichoke leaves, stalks and inflorescences extracts as antioxidant, anti-proliferative, antimigratory and anti-angiogenic activities (Zelia *et al.,* 2012). Cynara ethanolic extract reduced total cholesterol and triglyceride levels in rats from 66.5 to 58.3 and 100.8 to 81.2 mg/kg, respectively. These effects were attributed for the active ingredients e.g. cynarin and flavonoids (Dalen *et al.,* 2012).

Achillea (*Achillea millefolium*) species are used in folk medicine, the infusion of dried flowers are considered suitable for treatment of antioxidant, antifungal, anti-

inflammatory, anti-edematous, antiviral, antimicrobial, hemorrhoids, dyspepsia, dysmenorrhea, gastritis and immunomodulatory properties (Vitalini *et al.,* 2011). Also, (Florea *et al.,* (2013) found antitumor activity of wild and commercial *A. millefolium* in human tumor cell for breast carcinoma (MCF-7), non-small cell lung cancer (NCI-H460), colon carcinoma (HCT-15), cervical carcinoma (HELA), hepatocellular carcinoma (HEPG2) and hepatotoxicity.

Pot marigold (*Calendula officinalis*) species are used for cutaneous wound healing, collagen efficiency, jaundice, blood purification, cytotoxic, antitumor and antispasmodic effects (Gharineh *et al.,* 2013). Likewise, (Preethi *et al.,* 2006) studied the effect of *C. officinalis* administration on antioxidant system in blood pointed to catalase, superoxide dismutase, glutathione peroxidase and glutathione. The pharmacological activities of *C. officinalis* such as anti-HIV, anti-cancer, anti-inflammatory, haepatoprotective, spasmolytic and spasmogenic activities were reported by (Muley *et al.,* 2009).

Chamomile (*Matricaria chamomilla*) has been used traditionally as a medicinal and pharmaceutical preparation due to its anti-inflammatory and antispasmodic properties (Harbourne *et al.,* 2009). Similarly, (Guimaraes *et al.,* 2013) tested the antitumor potential of wild german chamomile methanolic extract on MCF-7 (breast carcinoma), NCI-h460 (non-small cell lung cancer), HCT-15 (colon carcinoma), HELA (cervical carcinoma), HEPG2 (hepatocellular carcinoma) and PLP2 (hepatotoxicity).

Aim of this study is to examine the efficiency of aqueous extracts of *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers at a dose of 200 mg/kg body weight on solid tumor mice after 21 days through the determination of tumor size, survival rate, survival time, antioxidant markers, liver functions, kidney functions, lipid profile and haematological analysis comparing with doxorubicin in concentration of 15mg/kg.

Materials and methods

Sample and sampling:

The present investigation was carried out using *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers belong to family Compositeae. Samples were kindly obtained from Agricultural Research Center, Giza, Egypt. Flower samples were air dried in the shade and ground into a fine powder.

Powdered air dried Flowers (2 Kg) of dried samples were extracted with distilled water by boiling at temperature from 80 to 100°C under reflux for 3 h to achieve an initial extract. All extracts were filtered after cooling to room temperature. Finally, the extracts were lyophilized and preserved at −20°C until further use (Kim *et al.,* 2011).

Experimental animals:

Fourty nine female albino mice (20-25g) were obtained from the animal house of Faculty of Pharmacy, Mansoura University, Egypt. All mice were housed in microlon boxes in a controlled environment (temperature 25±20ºC and 12 h dark/light cycle) with standard laboratory diet and water *ad libitum* (Saluja *et al.,* 2010).

Solid Ehrlich Carcinoma (SEC) Tumor Model:

A model of SEC where 0.2mg (1×10^6) of the Ehrlich carcinoma cells obtained from Experimental Oncology Unit of National Cancer Institute, Cairo University, Egypt were implanted subcutaneously into the right thigh of the lower limb of mice. A palpable solid tumor mass (about 100 mm3) was developed within 12 days (Osman *et al.,* 1993).

Experimental protocol:

Female albino mice were divided into 7 groups contain 7 animals of each, as follows:

Group1(normal):represents normal mice by means non tumors.

Group2:(control): SEC-bearing mice.

Group3: SEC-bearing mice treated with doxorubicin (DOX) (molecular weight: 543.5262 and chemical formula: C27-H29-NO11) in concentration of 15mg/kg. Doxorubicin was administered intraperitoneally in six equal injections (each containing

2.5 mg/kg body weight) to animals over a period of 3 weeks for accumulative dose of 15 mg/kg body weight according to Timao and Singal, (2000).

Group 4: SEC-bearing mice treated intraperitoneally with aqueous extract of *C. cardunculus* flowers (200 mg/kg) (Sethuramani *et al.,* 2014).

Group 5: EAC-bearing mice treated with aqueous extract of *C. officinalis*, flowers in concentration of 200 mg/kg.

Group 6: EAC-bearing mice treated with aqueous extract of *A. millefolium,* flowers in concentration of 200 mg/kg.

Group 7: EAC-bearing mice treated with aqueous extract of *C. officinalis*, flowers in concentration of 200 mg/kg.

Blood samples were collected from the eye canthus by heparinized tubes after 21 days from the beginning of the experiment. Then, each blood sample was divided into two portions. First portion was centrifugation to obtain the blood serum. Serum samples were kept at refrigerator under freezing conditions for determination the parameters included antioxidant markers (MDA, TAC and SOD), liver functions (ALT, AST, proteins, albumin and Globulins), kidney functions (creatinine and urea) and lipid profile (Triglycerides, total cholesterol, HDL-c, LDL-c and VLDL-c). Second portion was treated with 10% of ethylene diamine tetracetic acid (EDTA) with a good shaking to determine complete blood count (CBC) as a haematological analysis.

Tumor Volume, survival rate and survival time:

Antitumor effects of different treatments were evaluated by tumor growth inhibition. Tumors were measured individually using a caliper. Tumor volume was determined by the following equation: (Tumor Volume = length × width^2 × 0.52) according to method of (Jia *et al.,* 2005).

Chemical analysis of blood:

Determination of malondialdehyde (MDA), superoxide dismutase (SOD) activity was assayed by the method of Habig *et al.,* (1974) and Nishikimi *et al.,* (1972).

Liver functions (ALT+AST) were determined as described by Randox (United Kingdom) according to the method of Reitman and Frankel, (1957). Also, George (1939) method was used to determine of protein and albumin.

Kidney functions (creatinine and blood urea) were determined by a colorimetric method according to Patton and Crouch (1977) as described in a commercial kits by Human (Germany).

Lipid profile (triglycerides, total cholesterol, HDL, LDL and vLDL) were determined by enzymatic colorimetric method of Richmond (1973) described in a commercial kits by Human (Germany).

Haematological analysis (Hb, RBC, PCV, MCV, MCHC, Plt, MPV, PCT, PDW, WBC, LYM, MON, GRA) were through using apparatus namely ABX Micros 60 which a fully automated Haematological analyzer from Sysmex Corporation International Company according to Nakul *et al.,* (2003).

Statistical analysis of obtained data were done using the statistical software package CoStat (2005). All comparisons were first subjected to one way ANOVA and significant differences between treatment means were determined using Duncan's multiple rang test at $p<0.05$ as the level of the significance (Duncan, 1955).

Results and discussion

Effect of crude aqueous extract of investigated flowers as antitumor:-

The yield of aqueous extracts were 7.7, 6.2, 9.4 and 8.6% for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla*, respectively.

Data in table (1) revealed that the tumor size in zero time for all mice was ranged from 55.8 and 85.7 mm. From the same table, it was clear that the tumor size for control tumor mice (Group 2) was raised from 85.7 to 513.6mm after 21 days. While, the treatment of doxorubicin in concentration of 15mg/kg inhibit tumor size to 98.2mm after

21 days. Also, the effects of aqueous extracts for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers 200 mg/kg on ehrlich, were 198.7, 223.5, 139.8 and 168.7mm, respectively.

Data in table (1) mentioned that the survival rate of normal mice which was 100%. While, it decreased in control tumor mice to 28.5%. Whereas, the highest effective of doxorubicin in concentration of 15mg/kg and *C. officinalis* at doses 200mg/kg on survival rate, were, 85.7 and 71.4%, respectively. Likewise, the lowest effective of aqueous extracts for *C. cardunculus, A. millefolium* and *M. chamomilla* flowers at doses 200mg/kg on survival rate, were 57.1, 42.8 and 57.1%, respectively.

The survival time of control tumor mice was 29 days. Although, the highest effective treatments were doxorubicin in concentration of 15mg/kg and *C. officinalis,* at doses 200mg/kg on survival time, raised to 70 and 62 days, Likewise, the lowest effective teatment showed for *C. cardunculus, A. millefolium* and *M. chamomilla* flowers at a dose of 200mg/kg on survival time which were 42, 34 and 53 days, respectively.

The present data showed the highest impact on tumor size, survival rate and survival time, of doxorubicin in concentration of 15mg/kg and aqueous extract for *C. officinalis*, followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers at a dose of 200 mg/kg, respectively.

Table.1.Effect of investigated extracts on tumor size, survival rate and survival time in mice.

Groups	Tumor size (mm)		No. of mice	No. of survived mice	Survival rate %	Survival time (day)
	Zero time	21 days				
Group 1	0^{r}	0^{r}	7	7	%100	0
Group 2	$85.7^{k}\pm7.5$	$513.6^{a}\pm14.6$	7	2	%28.5	29
Group 3	$78.5^{l}\pm5.6$	$98.2^{j}\pm3.7$	7	6	%85.7	70
Group 4	$49.9^{q}\pm3.4$	$198.7^{d}\pm2.5$	7	4	%57.1	42
Group 5	$68.7^{mn}\pm4.9$	$223.5^{b}\pm7.4$	7	3	%42.8	34
Group 6	$57.1^{p}\pm3.9$	$139.8^{h}\pm3.9$	7	5	%71.4	62
Group 7	$60.4^{op}\pm8.9$	$168.7^{f}\pm4.3$	7	4	%57.1	53
LSD=0.05	5.39					

Group 1: normal mice, Group 2: +Ve control mice, Group 3: DOX, Groups 4, 5, 6 and 7: mice treated with aqueous extracts of *C. cardunculus, A. millefolium*, *C. officinalis* and *M. chamomilla*, respectively.

These findings were in agreement with Saluja *et al.,* (2010), who found that *vitex negundo* containing carbohydrate, glycoside, alkaloid, amino acids, flavonoids, fixed oil, tannins, gum, mucilage and phytosterols etc. The phytoconstituents were identified by chemical blood tests and effect of acetone and ethanol extracts from the leaves of *Vitex negundo* and 5-fluorouracil (5-FU, 20 mg/ kg/day) on survival time were 37.5, 4.16 and 44.33 days compared with tumor control which was 20.83±0.47 days.

Muresan *et al.,* (2006), tested the effect of doxorubicin, grape seed, doxorubicin + Grape seed and vehicle (carboxymethylcelullose 0.5%) on tumor volume which were 2.16, 1.64, 1.55 and 2.83ml, respectively, compared with tumor control (2.67ml). Furthermore, Hussein *et al.,* (2014), reported the effect of purslane seed oil (200g/kg), 5-Flourourasil (20mg/kg) and purslane seed oil+5-fluorouracil on tumor volume which were 4.5, 2.3 and 2.7ml compared with tumor control (8.3 ml).

Also, obtained data were agreed with those described by Mbarek *et al.,* (2007), who tested the effect of (*Nigella sativa* L.) extracts belong to family Asteraceae on tumor volume that injected with 30µL and 50µL were 0.22 and 0.16cm3, respectively compared with 2.5 cm^3 for tumor control.

Effect of crude aqueous extracts on antioxidant markers (MDA, TAC and SOD):-

Data in table (2) cleared that the malondialdehyde (MDA) of normal and control tumor mice were 3.7 and 7.2µmol/ml, respectively. The most effective treatments were doxorubicin in concentration of 15mg/kg and *C. officinalis* at a dose of 200mg/kg which decreased MDA levels to 3.9 and 4.9µmol/ml, respectively. Also, the effect of aqueous extracts for *C. cardunculus, A. millefolium* and *M. chamomilla* flowers at a dose of 200mg/kg reduced MDA to 5.2, 5.5 and 501µmol/ml, respectively.

The same table exhibited the total antioxidant capacity (TAC) that reduced from 0.529mmol/L for normal mice to reach 0.404mmol/L after bearing tumor. The most effective treatments were doxorubicin (15mg/kg) and *C. officinalis* (200 mg/kg) which raised TAC to 0.518 and 0.487mmol/L, respectively. Furthermore, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* flowers extract a dose of 200mg/kg increased TAC values to 0.462, 0.439 and 0.451mmol/L, respectively.

From table (2) it was noticed that the total superoxide dismutase (SOD) of normal mice was 1.67U/g which decreased to 1.23U/g in control tumor mice. Though, the effect of doxorubicin in concentration of 15mg/kg and *C. officinalis* at a dose of 200mg/kg raised SOD values to 1.59 and 1.51U/g, respectively. Moreover, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* were 1.39, 1.35 and 1.46U/g, respectively.

Table.2.Effect of investigated extracts on antioxidants parameters (MDA, TAC and SOD) in mice.

Groups	MDA (µmol/ml)	TAC (mmol/L)	SOD (U/g)
Group 1	3.7^{d}±1.40	0.529^{a}±0.041	1.67^{a}±0.05
Group 2	7.2^{a}±2.03	0.404^{b}±0.039	1.23^{a}±0.08
Group 3	3.9^{d}±0.95	0.518^{a}±0.009	1.59^{a}±0.54
Group 4	5.2^{b}±1.89	0.462^{b}±0.078	1.39^{a}±0.33
Group 5	5.5^{b}±1.97	0.439^{b}±0.067	1.35^{a}±0.19
Group 6	4.9^{c}±1.87	0.487^{b}±0.073	1.51^{a}±0.45
Group 7	5.1^{b}±1.35	0.451^{b}±0.014	1.46^{a}±0.33
LSD=0.05	6.78	1.27	5.13

Our data showed that doxorubicin in concentration of 15mg/kg and *C. officinalis* extract at a dose of 200mg/kg were the highest impact antioxidant activity e.g. MDA, TAC and SOD, followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers 200mg/kg, respectively.

This findings were in the same line of Metwally *et al.,* (2014), who examined the effect of neem, sec and sec+neem administration on MDA content in liver which were 49.23, 104.11 and 71.01µmol/g, respectively. While, effect of neem, sec and sec+neem administration on SOD activity in liver, were 2.62, 1.87and 3.43 U/g, respectively compared with normal control for MDA and SOD which were 39µmol/g and 2.17U/g, respectively.

Obtained data were agreed with those by Amal and Eman (2010), who tested the effect of *zizyphus* leaves extract and EAC on serum total antioxidant whic were 1.06 and 0.80mM/L, compared with normal control, 1.07mM/L, respectively.

Abd el-aziz *et al.,* (2014), found that the effects of rosemary extract on SOD, CAT, MDA and TAC of ehrlich ascites carcinoma (EAC)- bearing mice, were 26.06u/g, 35.02u/g, 0.1036mmol/g, 8.24mmol/g and 1.946 mM/L, respectively. While, the effects of ehrlich ascites carcinoma (EAC) bearing mice, on SOD, CAT, MDA and TAC of normal mice, were 18.00u/g, 22.08u/g, 0.0636mmol/g, 11.1mmol/g and 1.568mM/L, respectively. However, the effect on normal mice, were 38.90u/g, 42.56u/g, 0.1366mmol/g, 4.24mmol/g and 2.406mM/L, respectively.

Effect of crude aqueous extract of investigated flowers on liver functions:-

Alanine amino transferase (ALT) and aspartate amino transferase (AST) activities are known as cytosolic marker enzymes reflecting hepatocellular necrosis as they are released into the blood after damaging of the cell membrane. Therefore both enzymes are used as indicators for hepatic damage (Andallu and Vardacharyulu, 2001).

From tables (3) it was clear that ALT, AST, Total proteins, Albumin and Globulins increased significantly from 17.86, 35.15, 6.28, 2.97 and 3.31 U/L, respectively In normal mice to 33.38, 74.12, 5.01, 1.99 and 3.02 U/L, respectively in tumor mice. Such significant increase of ALT and AST activities as shown suggest possible necrotic injury of the liver or cholestasis with hepatocellular necrosis (Van Hoof and De Broe, 1994).

Data in tables, (3) showed that the alanine amino transferase was raised from 17.86 for normal mice to reach 37.38U/l, after bearing tumor. While, the most effective treatments was doxorubicin and *C. officinalis* on ALT, were 21.34 and 24.93U/l, respectively. Likewise, the effect of aqueous extracts for *C. cardunculus, A. millefolium,* and *M. chamomilla*, were 27.87, 29.43 and 31.29U/l, respectively.

The table showed that the aspartate amino transferase AST of normal mice was 35.15U/g which raised to 78.12U/l in control tumor mice. Though, the effect of doxorubicin in concentration of 15mg/kg and *C. officinalis* at a dose of 200mg/kg were 44.91 and 40.92U/l, respectively. Furthermore, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* were 48.04, 53.69 and 55.82U/l, respectively.

Our data were in agreement with those obtained by Sethuramani *et al.,* (2014), who found that the effect of aqueous extract of *Oldenlandia umbellata* on AST and ALT, were 71.25 and 50.05U/l, respectively. While, the effect of ethanolic extract were 68.22 and 48.50U/l, respectively. Also, they found that effects of fluorouracil at 20mg/kg on AST and ALT, were 11.5 and 17.32U/l, respectively. compared to tumor control on the same serum enzymes were 7.15 and 30.62U/l, respectively.

Obtained data were agreed with those reported by Gupta *et al.,* (2004), who found that, effects of methanol extract for *Bauhinia racemosa* (100 mg/kg) on ALT and AST U/l, were 71.1 and 43.3 U/l, compared with Vehicle control on ALT and AST U/l, were 65.3 and 39.50 U/l, respectively.

From the same table, it was clear that the total proteins in normal mice was 6.28g/dl. While, doxorubicin in concentration of 15mg/kg and aqueous extract of *C. officinalis* at a dose of 200mg/kg decreased the values of total proteins in ehrlich solid tumor mice, to 5.98 and 5.71g/dl, respectively. Followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers at dose of 200mg/kg (5.11, 4.33 and 4.81g/dl, respectively) compared with control tumor mice which was 4.01g/dl.

The same table revealed that the total albumins in normal mice was 2.97g/dl. The effect of doxorubicin in concentration of 15mg/kg and aqueous extract of *C. officinalis* (200mg/kg) showed values for total albumins in solid Ehrlich tumor mice, were 2.66 and 2.88 g/dl, respectively. Followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers (200 mg/kg), that were 2.78, 2.56 and 2. 28 g/dl, for aqueous extract, respectively compared with normal and control tumor mice which were 2.97 and 1.99 g/dl, respectively.

From table (3), it was notified that the total Globulins was reduced from 3.31 in normal mice to reach 2.02g/dl after bearing tumor. While, the most effective treatments were doxorubicin and *C. officinalis* on globulin to achieve 3.1 and 3.5g/dl, respectively. Likewise, the effect of aqueous extracts for *C. cardunculus, A. millefolium,* and *M. chamomilla*, were 2.76, 2.45 and 2.66g/dl, respectively.

These findings were in the same line with those mentioned by Saluja *et al.,* (2010), who found that effect of ethanolic, acetone (500 mg/kg) for *Vitex negundo* leaves and 5- fluorouracil (5-FU, 20 mg/ kg/day) on Total proteins were 9.1, 9.6 and 8.65g/dl, respectively compared with tumor control, 13.95g/dl.

Obtained data were agreed with those by Abd el-aziz, *et al.,* (2014), who found that effect of rosemary extract on Albumin of ehrlich ascites carcinoma (EAC)- bearing mice, was 2.570 g/dl, compared with normal and control mice (3.196 and 2.090 g/dl, respectively). Also, they stated that the antioxidants activity of polar extracts of rosemary is related with the content of phenolic compounds (carnosol, carnosic acid). Constituents in rosemary have shown a variety of pharmacological activities of cancer chemoprevention and therapy in vitro and in vivo models.

Table.3.Effect of extracts on liver functions for solid ehrlich tumor mice.

Groups	ALT (U/L)	AST (U/L)	Total proteins (g/dl)	Albumin (g/dl)	Globulins (g/dl)
Group 1	$17.86^{j} \pm 0.97$	$35.15^{e} \pm 0.12$	$6.28^{a} \pm 0.24$	$2.97^{a} \pm 0.08$	$3.31^{a} \pm 0.16$
Group 2	$37.38^{a} \pm 0.22$	$78.12^{a} \pm 0.16$	$4.01^{c} \pm 0.16$	$1.99^{b} \pm 0.14$	$2.02^{b} \pm 0.02$
Group 3	$21.34^{f} \pm 0.33$	$40.92^{d} \pm 0.34$	$5.98^{b} \pm 0.79$	$2.88^{a} \pm 0.09$	$3.1^{a} \pm 0.7$
Group 4	$29.43^{b} \pm 0.13$	$53.69^{b} \pm 0.21$	$4.33^{c} \pm 0.25$	$2.08^{a} \pm 0.13$	$2.76^{b} \pm 0.14$
Group 5	$31.29^{b} \pm 0.79$	$55.82^{b} \pm 0.63$	$4.81^{c} \pm 0.99$	$2.36^{a} \pm 0.29$	$2.45^{b} \pm 0.70$
Group 6	$24.93^{d} \pm 0.48$	$44.91^{c} \pm 0.83$	$5.71^{b} \pm 0.42$	$2.66^{a} \pm 0.10$	$3.5^{a} \pm 0.32$
Group 7	$27.87^{c} \pm 0.32$	$48.04^{c} \pm 0.11$	$5.11^{b} \pm 0.09$	$2.45^{a} \pm 0.08$	$2.66^{b} \pm 0.01$
LSD=0.05	1.8	5.26	2.47	1.57	1.23

Effect of crude aqueous extract of investigated flowers on kidney functions:-

Determination of serum creatinine and urea were used as indicators for kidney functions. The effect of aqueous extracts of all investigated samples on serum creatinine and urea levels in Ehrlich solid tumor during the experimental periods are tabulated in table (4).

It could be noticed that the injection with tumor induced a significantly increase in serum creatinine and urea levels from 1.46 and 49.91 to 0.58 and 78.45 mg/dl compared with non- tumor mice. This could be attributed to the presence of renal damage as a result of cancer cell invasions, Griffin *et al.,* (1995).

Table (4) cleared that the serum creatinine in normal mice was 0.58mg/dl, although the aqueous extracts of *C. cardunculus*, *A. millefolium, C. officinalis,* and *M. chamomilla* flowers, at a dose of 200mg/kg, reduced serum creatinine to 1.17, 1.22, 0.92 and 0.98mg/dl, respectively. While, the doxorubicin in concentration of 15mg/kg reduced serum creatinine to 0.79 mg/dl, after 21 days, as compared to tumor control mice, which was 1.46mg/dl.

Also, it's revealed that urea level of normal mice was 78.45g/dl. While, the effect of doxorubicin and *C. officinalis* on ehrlich tumor were 75.65 and 71.62g/dl, respectively. Otherwise, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla*, were 57.01, 54.94 and 65.39g/dl, respectively compared with tumor control mice which was 49.91g/dl.

Table.4.Effect of investigated extracts on kidney functions in Ehrlich solid tumor mice.

Groups	Creatinine (mg/dl)	Urea (mg/dl)
Group 1	$0.58^{b} \pm 0.14$	$78.45^{a} \pm 0.34$
Group 2	$1.46^{a} \pm 0.28$	$49.91^{d} \pm 5.36$
Group 3	$0.79^{b} \pm 0.18$	$75.65^{a} \pm 2.13$
Group 4	$1.17^{a} \pm 0.19$	$57.01^{c} \pm 0.06$
Group 5	$1.22^{a} \pm 0.32$	$54.94^{c} \pm 2.56$
Group 6	$0.92^{b} \pm 0.35$	$71.62^{a} \pm 0.53$
Group 7	$0.98^{b} \pm 0.13$	$65.39^{b} \pm 0.26$
LSD=0.05	2.07	4.98

These findings were in the same line with Fakhry *et al.,* (2011), who explained the effect of levamisole and chlorambucil on creatinine level were 1.91 and 1.65 mg/dl, compared with normal and tumor control mice which were 0.63 and 1.36mg/dl, respectively.

Also, Jayanthi *et al.,* (2014), tested the effect of Cisplatin (3.5mg/kg) on Serum creatinine and urea in EAC inoculated mice, were 7.250 and 129.g/dl7, respectively compared with tumor control, which were 9.250 and 189.3g/dl, respectively.

Effect of crude aqueous extract of investigated flowers on lipid profile:-

Data recorded in table (5) revealed that serum triglycerides, total cholesterol, LDL and vLDL values increased from 376, 69.43, 98.5, 13.35 and 19.7 mg/dl in non tumor mice to 473.6, 98.01, 156.6, 45.35 and 31.32 mg/dl in tumor mice, respectively, by injection with Ehrlich solid tumor mice $1X10^6$ at 12^{th} days.

On the other hand, table (5) declared that there is a highly significant decrease in serum HDL level and reached 21.35 mg/dl for tumor mice comparing with 36.38 mg/dl for normal mice at the beginning of experiment.

Abu-Sinna *et al.,* (2003), reported that the consumption of free amino acid for building the proteins of rapidly dividing tumor cells might result in the disturbance of the enzyme activity in the liver.

From table (5), it could be noticed that total cholesterol decreased with increasing the concentration of aqueous extract of investigated flowers and the experimental period for all samples under investigation. Accordingly, the treatment of tumor mice of doxorubicin 15mg/kg, aqueous flowers extract of *C. officinalis* 200mg/kg have the most effective, while the reduction of t-cholesterol levels achieve about 70.65 and 73.31mg/dl, respectively. Also, for *C. cardunculus* and *A. millefolium* flowers 200 mg/kg with a same was reducing value for t-cholesterol levels which were 83.08 and 85.48mg/dl, respectively. While, *M. chamomilla* flowers have a moderate value for reducing t-cholesterol levels, was 79.02mg/dl, for aqueous flowers extracts, respectively.

Doxorubicin (15mg/kg) and aqueous extract for *C. officinalis* (200 mg/kg) showed the highest impact total cholesterol, followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers (200 mg/kg), respectively, compared with normal and tumor control, which were 69.43 and 98.01mg/dl, respectively.

From table (5), it could be noticed that triglycerides decreased by increasing the concentration of aqueous extract of investigated flowers and the experimental period for all samples under investigation. Accordingly, the treatment of tumor mice of doxorubicin 15mg/kg, methanolic flowers extract of *C. officinalis* 200mg/kg have the most effective, where the reduction of triglycerides levels achieve about 109.7 and 118.2mg/dl, respectively. Also, for *C. cardunculus, A. millefolium* and flowers 200 mg/kg with a same was reducing value for triglycerides levels which were 132and135.6 mg/dl, respectively. While, *M. chamomilla* flowers have a moderate value for reducing triglycerides levels, was 29.57 mg/dl, for aqueous flowers extract, respectively.

Our data revealed that doxorubicin in concentration of 15mg/kg and aqueous extract for *C. officinalis* (200 mg/kg) showed the highest impact triglycerides, followed by *M. chamomilla*, *C. cardunculus* and *A. millefolium* flowers 200 mg/kg, respectively, as compared with normal and tumor control, which were 98.5 and 156.6 mg/dl, respectively.

Obtained data were agreed with those reported by Hussein *et al.,* (2014), who found that the effect of Ehrlich ascites carcinoma (EAC), on plasma total cholesterol and triglycerides of normal mice, were 73.76 and 67.24mg/dl, respectively. While, the effects of Purslane seed oil (200g/kg), on control mice, were 95.27mg/dl, 85.24mg/dl, 29.11mg/dl and 49.112mg/dl, respectively. Also, the effects of 5-Flourourasil (20mg/kg), on plasma total cholesterol and triglycerides of control mice, were 81.46mg/dl and 59.57mg/dl, respectively. as compared to normal mice, which were 124.43mg/dl and 109.16mg/dl, for plasma total cholesterol and triglycerides, respectively.

Also, Sethuramani *et al.,* (2014), illustrated that the aqueous extract of *Oldenlandia umbellata* 200mg/kg on total cholesterol and triglycerides, were 122.48mg/dl and 168.15mg/dl, reapectively, While, the effect of ethanolic extract of *Oldenlandia umbellate* 200mg/kg, were 124.88 and 162.68mg/dl on total cholesterol and triglycerides, respectively.

Data in table (5) showed that aqueous extract of all samples led to a gradual increase in serum HDL. Raising both of concentration of extracts and period of the experiment caused an increase in serum HDL, were 27.79, 25.91, 31.38 and 25.79 mg/dl for aqueous extract of *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers 200mg/kg respectively. While, treatment with doxorubicin 15mg/kg on serum HDL, was 35.41 mg/dl compared with normal and tumor control which were 36.38 and 21.35 mg/dl respectively.

Data in table (5), showed similar which effect on serum LDL. Raising both of concentration of extracts and period of the experiment caused an increase in serum LDL, were 26.13, 29.05, 18.58 and 24.02mg/dl for aqueous extract for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers 200mg/kg respectively. While, While, treatment with doxorubicin 15mg/kg on serum LDL, was 13.9 mg/dl compared with normal and tumor control, which were 13.35 and 45.35mg/dl respectively.

Our data for vLDL values as a result of treatment with aqueous extract for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers 200mg/kg, in tumor mice were 27.16, 29.52, 23.64 and 25.5 mg/dl respectively. While, the effect of doxorubicin (15mg/kg) on serum vLDL was 21.94 mg/dl compared with normal and tumor control, which were 19.7 and 31.32 mg/dl respectively.

Obtained data were agreed with those described Hussein *et al.,* (2014), who found that effect of Ehrlich ascites carcinoma (EAC), on HDL and LDL of normal mice, were 20.64mg/dl and 39.67mg/dl, respectively. Also, the effect of 5-Flourourasil (20mg/kg), on HDL and LDL of control mice, were 25.68mg/dl and 43.87mg/dl, respectively, compared with normal mice, which were 34.29mg/dl and 68.31mg/dl, for HDL and LDL respectively.

In addition, Abdel-Maksoud *et al.,* (2015), found that effect of cranberry extract (75mg/kg) on HDL-C and LDL-C of tumor mice were 32.5 and 133.5mg/dl, respectively. While, the effect of 5-fluorouracil (20mg/kg) were 35.8 and 90.91mg/dl. Also, the effect of cranberry extract (75mg/kg) + 5-fluorouracil (20mg/kg), on HDL-C and LDL-C of tumor mice were 37.6 and 90.10mg/dl, respectively, compared with normal mice which were 35.16 and 91.85mg/dl. Furthermore, HDL-C and LDL-C for tumor control mice were 30.38 and 166.77mg/dl, respectively.

Table.5.Effect of investigated extracts on lipid profile in solid ehrlich tumor mice.

Groups	T-Cholesterol (mg/dl)	Triglycerides (mg/dl)	HDL (mg/dl)	LDL (mg/dl)	vLDL (mg/dl)
Group 1	$69.43^{d} \pm 0.22$	$98.5^{f} \pm 01.55$	$36.38^{a} \pm 3.53$	$13.35^{c} \pm 0.12$	$19.7^{c} \pm 1.18$
Group 2	$98.01^{a} \pm 0.06$	$156.6^{a} \pm 9.18$	$21.35^{b} \pm 4.49$	$45.35^{a} \pm 1.06$	$31.32^{a} \pm 0.48$
Group 3	$70.65^{c} \pm 2.33$	$109.7^{e} \pm 0.22$	$35.41^{a} \pm 3.35$	$13.9^{c} \pm 0.01$	$21.94^{b} \pm 0.21$
Group 4	$83.08^{b} \pm 4.05$	$132.8^{b} \pm 4.12$	$27.79^{b} \pm 9.45$	$26.13^{b} \pm 0.03$	$27.16^{b} \pm 4.37$
Group 5	$85.48^{b} \pm 9.66$	$135.6^{b} \pm 9.07$	$25.91^{b} \pm 1.21$	$29.05^{b} \pm 9.36$	$29.52^{b} \pm 0.29$
Group 6	$73.31^{c} \pm 0.22$	$118.2^{d} \pm 0.11$	$31.09^{a} \pm 5.49$	$18.58^{c} \pm 0.12$	$23.64^{b} \pm 9.73$
Group 7	$79.02^{c} \pm 0.55$	$127.5^{c} \pm 3.12$	$29.57^{b} \pm 6.81$	$24.02^{b} \pm 5.63$	$25.5^{b} \pm 7.64$
LSD=0.05	3.82	7.35	2.87	2.36	1.98

Effect of crude aqueous extract of investigated flowers on Haematological parameters:-

The complete blood count (CBC) was used as a broad screening test to check such disorders as anemia, infection and many other diseases. It is actually a panel of tests that examines different parts of the blood, which play an important role in metabolism and important indicators of health in bothhuman or animals (Bain *et al.,* 2006).
The complete blood count (CBC) includes the following tests:

Effect of crude aqueous extract of investigated flowers on HB, RBCs, PCV, MCV and MCHC:-

Data in table (6) conveyed that the haemoglobin level (Hb), in normal mice, was 12.89 g/dl and decreased to 8.30 g/dl, in tumor control mice. While, doxorubicin in concentration of 15mg/kg and *C. officinalis* at a dose of 200 mg/kg were the most effective treatment on ehrlich tumor increase haemoglobin levels to 12.75 and 12.36g/dl, respectively. Likewise, the effect of queous extracts for *C. cardunculus, A. millefolium* and *M. chamomilla* were 10.18, 9.9.69 and 11.49g/dl, respectively.

From the same table, it was clear that the total red blood cells (RBCs), were reduced from 6.19×10^6/µl for normal mice to reach 3.11×10^6/µl after bearing tumor. Whereas, the effect of doxorubicin and *C. officinalis* were 4.79 and 4.19×10^6/µl on ehrlich tumor mice, respectively. Also, the effect of aqueous extracts for *C. cardunculus*, *A. millefolium* and *M. chamomilla*, were 3.34, 3.11 and 3.99×106/µl, respectively.

The same table showed that the total packed cell volume (PCV) of normal mice was 41.17 which decreased to 29.00% for control tumor mice. While, the effect of doxorubicin in concentration of 15mg/kg and C. officinalis at a dose of 200mg/kg raised PCV to 40.33 and 37.58%. Also, the effect of aqueous extracts for *C. cardunculus, A. millefolium* and *M. chamomilla,* were 33.09, 32.00 and 35.27%, respectively.

Previous data revealed that the total mean corpuscular volume (MCV) of normal and control tumor mice were 59.94 and 33.95µm3 respectively. Although, the effect of doxorubicin and *C. officinalis* on MCV values were 58.84 and 55.56µm^3, respectively. Moreover, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* were 42.22, 40.45 and 51.25µm^3, respectively.

On the other hand, table (6) declare that the total mean corpuscular hemoglobin concentration (MCHC) was reduced from 34.11g/dl for normal mice to reach 19.29g/dl after bearing tumor. Whereas, the effect of doxorubicin and *C. officinalis* on MCHC were 33.93 and 30.97g/dl, respectively. Also, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* were 26.16, 25.86 and 28.56g/dl, respectively.

Table.6.Effect of investigated extracts on haemoglobin and red blood cells in mice.

Groups	Hb (g/dl)	RBCs (10^6/µl)	PCV (%)	MCV(µm^3)	MCHC (g/dl)
Group 1	12.89^a ±0.23	6.19^a ± 0.29	41.17^a ±1.49	59.94^a ± 0.11	34.11^a ± 0.59
Group 2	8.30^e ± 0.29	3.11^c ± 0.20	29.00^c ±0.84	33.95^c ± 0.08	19.29^c ± 0.17
Group 3	12.75^a ±0.43	4.79^b ± 0.77	40.33^a ±0.49	58.84^a ± 0.47	33.93^a± 0.57
Group 4	10.18^c ±0.13	3.34^c ± 0.22	33.09^b ±0.24	42.22^b ± 0.19	26.16^b ± 0.32
Group 5	9.69^d ± 0.56	3.11^c ± 0.79	32.00^b ±1.77	40.45^b ± 0.16	25.86^b ± 0.55
Group 6	12.36^a ±0.68	4.19^b ± 0.17	37.58^b ±0.65	55.66^a ± 0.49	30.97^a ± 0.75
Group 7	11.49^b ±0.37	3.99^c ± 0.97	35.27^b ±0.19	51.25^a ± 0.34	28.56^a ± 0.47
LSD=0.05	2.68	3.19	1.23	1.73	6.39

This finding was in the same line with Saluja, *et al.,* (2010), who described that ethanolic extract (500 mg/kg) of *Vitex negundo* leaves on Hb, RBCs, WBC, PCV, were 12.91g/dl, 3.88mm3, 9.09mm3 and 21.3mm, respectively. Otherwise, Effect of 5-fluorouracil (20 mg/kg/day) on the same haematological parameters were 14.0, 4.11,

8.23, and 19.5, respectively, compared to tumor control mice (8.35, 2.67, 27.19 and 31.5, respectively).

Obtained data were agreed with those reported by Venu *et al.,* (2012), who found the effect of methanol extract of *cleome viscosa* (400 mg/kg) on haematological parameters of EAC-bearing mice e.g. Haemoglobin, RBCs, WBC were 14.4g%, 5.9U/l and 6.4U/l, respectively. Compared to tumor mice (9.7g%, 3.5U/l and 15.6U/l, respectively).

Sevastre *et al.,* (2010), found that effect of *V. album* extract on MCV, MCH and MCHC were 48.14, 16.40 and 38.89g/dl, respectively. While, the effect of doxorubicin on the same haematological parameters were 51.00, 16.72 and 32.70g/dl, respectively. Though, bearing tumor mice were 44.20, 14.56 and 33.00g/dl, respectively.

Effect of crude aqueous extract of investigated flowers on Plt, MPV, PCT and PDW:-

Data in table (7), cleared that the platelet blood test (Plt), level in normal mice, was 1279×10^3/µl and and decreased to 173×10^3/µl in tumor control mice. While, the effect of doxorubicin in concentration of 15mg/kg on Plt was 1232×10^3/µl. Similarly, the effect of aqueous extracts for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers at a dose of 200mg/kg on ehrlich tumor were 917, 901, 1123 and 1091×10^3/µl, respectively.

The table showed that the mean platelet volume (MPV) was reduced from 9.9µm^3 for normal mice to reach 5.2µm^3 after bearing tumor. Though, the effect of doxorubicin (15mg/kg) and *C. officinalis* (200mg/kg) have the value of 8.0 and 7.8µm^3. Also, the effect of aqueous extracts for *C. cardunculus, A. millefolium* and *M. chamomilla* were 6.8, 6.0, 7.8 and 7.1 µm^3, respectively.

The same table showed that the platelets hematocrit value (PCT) in normal mice was 8.4 which reduced to 6.4% after bearing tumor. While, the effect of doxorubicin 15mg/kg was 8.01%. Correspondingly, the effect of aqueous extracts for *C. cardunculus, A. millefolium, C. officinalis* and *M. chamomilla* (200mg/kg) were 5.69, 5.06, 7.51 and 6.13%, respectively.

On the other hand, table (7) declare that the total platelet distribution width (PDW) of normal and control tumor mice were 12.9 and 6.2%, respectively. Although, the treatment with doxorubicin slightly similar normal mice value (12.0%). As well, the effect of aqueous extracts for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* (200mg/kg), were 9.0, 8.6, 11.2 and 10.0%, respectively.

Table.7.Effect of investigated extracts on platelets in mice.

Groups	Plt (10^3/ µl)	MPV (µm^3)	PCT (%)	PDW (%)
Group 1	$1279^a \pm 93.31$	$9.9^a \pm 0.23$	$8.4^a \pm 0.08$	$12.9^a \pm 0.44$
Group 2	$173^e \pm 17.55$	$5.2^e \pm 0.36$	$4.6^e \pm 0.02$	$6.2^f \pm 0.13$
Group 3	$1232^a \pm 16.29$	$8.1^b \pm 0.24$	$8.01^a \pm 0.04$	$12.0^a \pm 0.06$
Group 4	$9017^d \pm 89.76$	$6.8^d \pm 0.29$	$5.69^d \pm 0.55$	$9.0^d \pm 0.21$
Group 5	$9001^d \pm 19.16$	$6.0^d \pm 0.49$	$5.06^d \pm 0.12$	$8.6^e \pm 0.23$
Group 6	$1123^b \pm 11.49$	$7.8^c \pm 0.86$	$7.51^b \pm 0.09$	$11.2^b \pm 0.21$
Group 7	$1091^c \pm 09.73$	$7.1^c \pm 0.73$	$6.13^c \pm 0.13$	$10.0^c \pm 0.81$
LSD=0.05	1.87	5.13	4.82	1.61

Such findings were in the same line with **Sevastre *et al.,* (2010)**, who found that effects of *V. album* extract on PLT, PCT, MPV and PDW were 723.60×10^9/l, 0.45%, 6.20% and 6.06%, respectively. While, the effect of doxorubicin on the same haematological were 498.50×10^9/l, 0.32%, 6.38% and 6.40%, respectively compared to tumor control mice 389.33×10^9/l, 0.23%, 5.97% and 5.84%, respectively.

Effect of crude aqueous extract of investigated flowers on WBCs, Lym, Mono and GRA:-

Data in table (8) cleared that white blood cells (WBCs) level in normal mice was 11.23 which raised to 24.23×10^3/µl in control tumor mice. While, the effect of doxorubicin in concentration of 15mg/kg and *C. officinalis* at a dose of 200mg/kg were 12.46 and 13.06×10^3/µl, respectively. Also, the effect of aqueous extracts for *C. cardunculus, A. millefolium,* and *M. chamomilla*, were 15.68, 18.29 and 14.39×10^3/µl, respectively.

From table (8), it was informed that the level of Lymphocytes (Lym) increased from 5.35×µm3 for normal mice to reach 7.11×103/µl after bearing tumor. Even though, the effect of doxorubicin (15mg/kg) and *C. officinalis* (200mg/kg) were 5.51 and 5.79×103/µl, respectively. Finally, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla* were 6.21, 6.85, and 5.88 ×103/µl, respectively.

Previous data revealed that the Monocytes (Mono) values of normal mice was 0.45% which raised to 0.76% for control tumor mice. Whereas, the effect of doxorubicin (15mg/kg) and *C. officinalis* (200mg/kg) were 0.49 and 0.55%, respectively. Also, the effect of *C. cardunculus, A. millefolium* and *M. chamomilla*, were 0.64, 0.67 and 0.59%, respectively.

On the other hand table (8) declared that the Granulocytes (GRA) of normal and control tumor mice were 39.3 and 25.0%. While, the effect of doxorubicin and *C. officinalis* were 38.8 and 34.9%, respectively. Similarly, the effect of aqueous extracts for *C. cardunculus, A. millefolium, C. officinalis,* and *M. chamomilla* flowers 200 mg/kg on ehrlich, were 29.9, 28.0 and 32.7 %, respectively.

Table.8.Effect of investigated extracts on white blood cells in mice.

Groups	WBCs (10^3/µl)	Lym (10^3/µl)	Mono (%)	GRA (%)
Group 1	11.23^{h} ± 0.25	5.35^{c} ± 0.29	0.45^{a} ± 0.01	39.3^{a} ± 0.25
Group 2	24.23^{a} ± 0.37	7.11^{a} ± 0.01	0.76^{a} ± 0.03	25.0^{b} ± 0.31
Group 3	12.46^{j} ± 0.54	5.51^{c} ± 0.20	0.49^{a} ± 0.01	38.8^{a} ± 0.17
Group 4	15.68^{d} ± 0.45	6.21^{b} ± 0.66	0.64^{a} ± 0.11	29.9^{b} ± 0.33
Group 5	18.29^{b} ± 0.49	6.85^{b} ± 0.23	0.67^{a} ± 0.13	28.0^{b} ± 0.01
Group 6	13.06^{f} ± 0.04	5.79^{c}± 0.15	0.55^{a} ± 0.02	34.9^{a} ± 0.54
Group 7	14.39^{e}±0.09	5.88^{c} ± 0.06	0.59^{a} ± 0.17	32.7^{a} ± 0.37
LSD=0.05	1.37	1.26	1.01	1.33

Sevastre *et al.,* (2010), they found that effects of *V. album* extract on WBC, LYM, MID and GRA, were 7.37, 6.06, 0.14 and 1.17×10^9/l, respectively. While, the effect of doxorubicin on the same haematological parameters were 15.01, 8.93, 0.34 and 5.64×10^9/l, respectively. In spite of tumor control which were 4.87, 4.29, 0.11 and 0.45×10^9/l, respectively.

These findings were in the same line with Venu *et al.,* (2011), who found that effect of methanol extract of *cleome viscosa* (400mg/kg) on WBC, Monocyte, Neutrophil and Lymphocyte were 6.4u/l, 1.9%, 25.1% and 69.4%, respectively when compared with tumor control on the same haematological parameters which were 15.6u/l, 1.2%, 56.4% and 33.6%, respectively.

The plasma of tumor-bearing humans and other mammalian models exhibits high levels of PGs, especially those of the E-type (mainly PGE2). This is because tumor cells. Siddiqui and Williams (1987) and Kalmar *et al.,* (1984), as well as specialized antigen-presenting cells, stimulated by the manifestation of an initiating tumor, produce PGE2 and PGD2.which present associated with the impairment of immune function, thus leading to immunosuppression and cancer cachexia. Leung and Mihich, (1980) and Scott *et al.,* (1982).

Prostaglandins (PGs) and other eicosanoids are bioactive lipids that impact normal development, tissue homeostasis, inflammation, and cancer progression. Wang and Dubois (2010). Prostaglandins serum levels have been shown to be increased in tumor-bearing mice. Takeuchi *et al.,* (1982). as well as in patients with solid tumors

without showing impact on the course or stage of disease. Todo *et al.,* (1987) and Starczewski, *et al.,* (1984).

Conclusion

The effect of doxorubicin (DOX) in concentration of 15mg/kg and aqueous extract for *C. officinalis* at a dose of 200mg/kg showed the highest positive values of inhibit tumor size, antioxidant parameters, liver functions, kidney functions, lipid profile and complete blood count (CBC) as a haematological analysis, followed by *M. chamomilla* which indicated the medium levels. While, the lowest effects were showed for *C. cardunculus* and *A. millefolium*, respectively. However, industrial antitumor (DOX) proved side effects. Otherwise, investigated medicinal plants are natural antioxidants and anti-tumor have no harmful effects to health as food and pharmaceutical uses relevance for humans.

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