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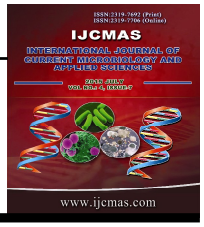

Original Research Article

Study the effect of *Artemisia* Herba-alba extracts in adult and larval stages of *Echinococcus granulosus* parasite in vivo and in vitro

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Keywords

Artemisia Herba-alba extracts, *Echinococcus granulosus*, Hydatidosis, adult worms

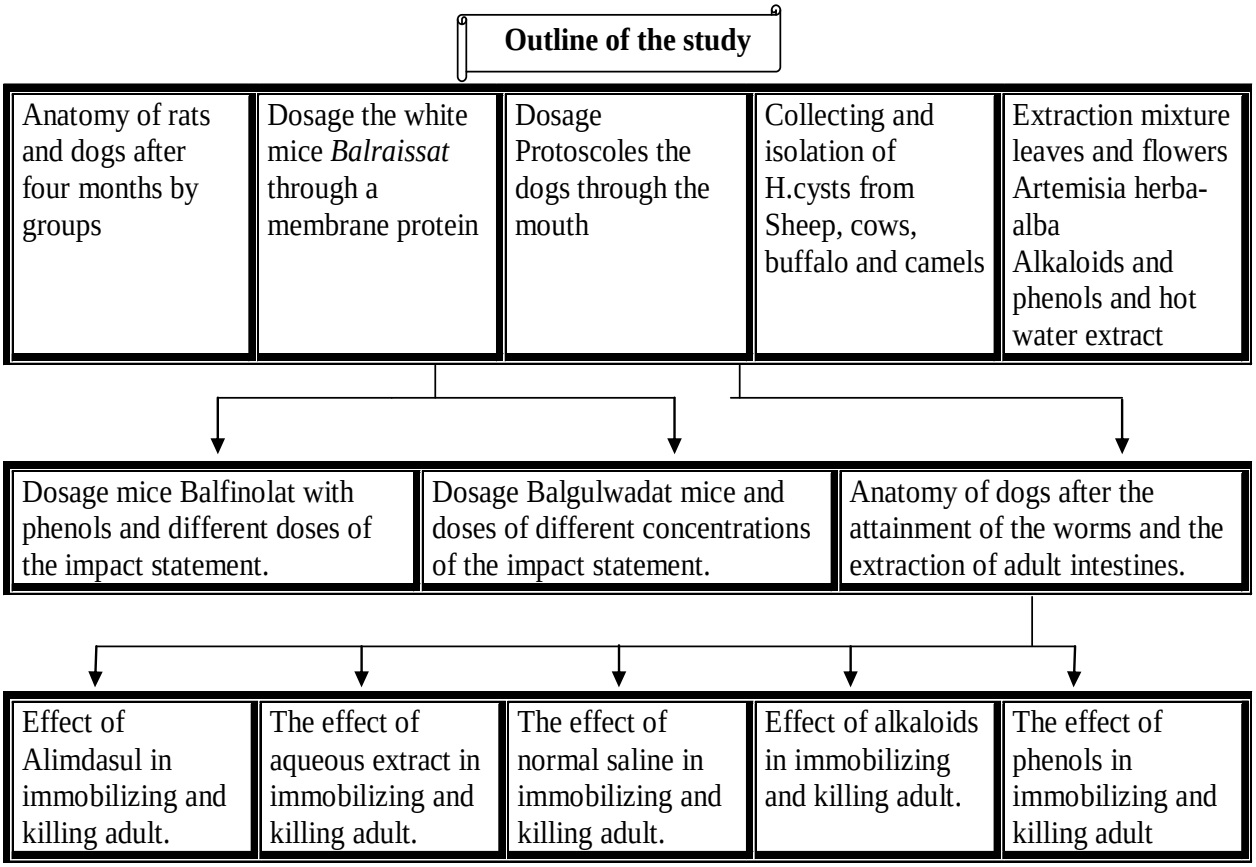
A B S T R A C T

This study was conducted for the period from June 2012 until March 2013 in the advanced laboratory of parasites / College of Science / University of Babylon and some Veterinary laboratories Babylon province. to assess the efficiency of Alkaloids in concentrations (270, 240,140) µg/ ml and phenols for concentrations (280, 260,160) µg/ml derived from a mixture of leaves and blossoms plant Artemisia herba-alba to the vitality and growth of Hydatidosis and protoscoleces in-vivo and adult parasite *Echinococcus granulosus* in vitro. Hydatidosis have been collected from various tissues and organs of slaughtered sheep, cows, buffaloes and camels in cities of the Middle Euphrates. The results showed there were significant differences in the sizes and weights of hydatidosis. the concentration of alkaloids 270 µg / ml had reduced the diameter and size hydatidosis (4.1) mm in diameter compared to the size of hydatidosis for positive control animals (6.0) mm, while the phenolic conc. 280 µg / ml was more influential in reducing diameter of hydatidosis (3.8 mm) compared to the control in question, either concentration (280, 270) µg / ml of alkaloids and phenols respectively, showed therapeutic efficiency of (55.17%, 48.27%) , there was a decrease in the rates of weights hydatidosis and weights inflation factor and members of the infected liver, spleen and lung compared to animals of the positive control group (infected by larvae stage). The impact of extracts in immobilizing and killing the adult worms. the effect of phenols came first and alkaloids second and The aqueous extract Thirdly and finally normal saline with significant differences between the types of extracts and time.

Introduction

The disease hydatidosis a more serious health problems and epidemic in most countries of the world. As it gets (200) per person (100,000) people annually (Aumran *et al.*, 2000) it's a big dilemma for the disease to humans for both medical and economic state in most parts of the world (Pawlowski, 1997; Perez-Serano *et al.*,1997). in some countries its consider a hyper endemic as in Iraq, Syria, Lebanon, Palestine, and a section

of the diameters of the Arabian Peninsula and North Africa Sudan and the Caspian Sea basin and in some diameters South America (AL-Dabagh and AL-Janabi, 1990) The disease is endemic in Iraq as a result of the large number of infected dogs be in contact directly with the meddle hosts (Babero *et al.*,1963) recent information showed spreading in areas that were previously clear of it in absolute terms such as North America and Canada (Smyth & McManus,1986). The cause of this disease is the larval stage of the tapeworm parasites of the genus *Echinococcus*, and it's a common diseases among humans and animals (Zoonotic disease), as it affects humans and animals alike (Craig *et al.*,1995 ; Kharebov *et al.*,1997). Despite the evolution of medical science of human and veterinary It still poses a dilemma healthy social and economic major afflicting all peoples, came the threat to human life, the loss of protective devices, especially in finding effective and efficient medicine against him (Del-Cacho *et al.*,1996). It does not appear the symptoms of clinical and clear, but after arriving in an advanced state after any evolution of injury and increase the size of hydatidosis, causing pressure on the member adjacent to the location (Shambesh *et al.*,1997), especially when the members of the mission, such as the brain, heart and spine as difficult to control therapeutic and surgical procedures. Either economically illness affects the rates of production in infected animals as well as the loss of infected meat for its nutritional value as well as great an impact in the transfer of injury in the case of feed final approval (Thompson, 1977). Increasingly prevalent disease hydatidosis in rural areas, which dominates the livestock situation is even worse, as the presence of dogs available so the appropriate conditions that enable the parasite to continue living among hydatidosis intermediate and final. With so many materials used in the treatment of disease, hydatidosis are chemically, but it succeeded partially successful. Forcing scientists to ask a lot of studies and experiments for the purpose of activating the process of drug treatment, and some have resorted to trying to develop chemotherapy by mixing parts of some medicinal plants like paper or stems or roots with some effective drugs against the hydatidosis (polat *et al*., 2009), In order to strengthen and increase the absorption and thus raise its concentration in the blood plasma to have a powerful effect against the parasite (Sida, 2005) and, for example, found (2007) (Ma *et al*.) have a strong impact when mixing alkaloids plant *Ainatforcoom arohpos* with albendazole in the inhibition of the growth of hydatidosis are secondary infected experimentally in white mice as well as in vital protoscolices obtained hydatidosis in vitro. Our choice comes for the plant Artemisia herba-alba as one of the most important plants used in the treatment of many diseases, particularly parasitic ones where stated (1985) Klayman the material Alaratmsnin isolated from the plant *A.annua* and its derivatives are effective against all of falciparum malaria *P. falciparium* in humans and *P. cynomolgi* and *P. gallinaceum.* And derivatives of this article effects against worms *S.mansoni* and *S.japonicum*, this article also have effective against *Clonorchis sinensis*, also said all of the (1976) chakrararty and (1988) arty Al.Rawi & chakrar, that this plant is used in medicine for its effect effective to expel intestinal worms, especially worms *E. vermiculasis*, *H. nana*, *A. lumbricoides* and others. Therefore, the current study aimed to choose the effect of alkaloids and polyphenols isolated from the extract mixture of leaves and flowers in the Artemisia herb-alba plant growth inhibition hydatidosis in-vivo and adults parasite in vitro and its impact on the laminate layers and germ attempt a new treatment for these materials on hydatidosis.



Materials and Methods

Laboratory animals

Used in the experiment laboratory mice of the white Swiss kind(Mus musculus) strain (Balb/c), which was obtained from the Animal House of the Faculty of Medicine / University of Baghdad, where he was reared and Tkterha in the Animal House of the Department of Life Sciences / College of Science - University of Babylon, The animals placed in a special metal cages standardized laboratory conditions of ventilation and lighting (10:14 hours light: dark) and temperature between (24-32 m). And were given water and feed their own, female mice were used in the experiment and the weight (25 +2 g) and old (6-8) weeks. Also used four groups of three puppies each group and by the age of three months, males and females, where each group dosage a special kind of primates, as follows. The first group protoscoleces isolated from sheep and Asch second group dosage protoscoleces isolated from tissues of cows and the third group dosage protoscoleces isolated from tissues of buffalo and fourth protoscoleces isolated from tissues of camels.

Sampling

Been getting hydatidosis members of sheep, cows, buffaloes and camels slaughtered in the slaughter house of the cities of the Middle Euphrates (Karbala, Babil, Najaf, Samawah) where the eradication of the bags was done, as put bags of sheep and cows, buffaloes and camels in special bags clean

separately in a container of cork and transferred to the laboratory. And washed with water from the outside tap for the purpose of getting rid of blood and other materials.

Preparation and isolation of protoscoleces

Followed the way (1985) (Smyth) to collect all the protoscoleces type separately as it has been sterilized the surface of the hydatidosis First ethyl alcohol 70% and medical syringes with sterile 10 ml size with a 21 gauge needle degree. As means of pulling the hydatidosis with protoscoleces swimming in it and put in a 250 mL Baker, then open the bag using scissors and forceps for the purpose of extracting the class generated and placed in the pot Sterile container, the solution is then washed by collect bottle washing containing solutions phosphate buffer saline (PBS).

Collect this solution commentator who was obtained and added to the liquid hydatidosis, then collected protoscoleces in test tubes sterile for the purpose of deposition by centrifuge three times quickly and 3000 r / min for a period of 15 minutes for each deposition, was added antibiotics before starting second washing (penicillin crystallion penicillin) by 2000 units / ml and streptomycin at 1 g / l to the unbridled of washing PBS During the second last wash. The collection of fluid in the bottles covered with another sterile wax paper (Para film) and kept in the refrigerator. I've been counting the number of protoscoleces using the method of transfer-sized hard by absorbent thin of size 50 Micro-liter after shaking the commentator that formed of the protoscoleces and phosphate buffer saline sterile. This has been developed as commentator on a clean glass slide and mixing with a drop of dye Eocene water 1.0% and was put under the microscope to find the desired approximate count of 2,000 first president with an iridescent green color, as protoscoleces pigmented with red has been neglected for being dead and this particular dosage for mice. Then were the same way back above to find the approximate number of required and 5000 Chairman of the dosage puppies by mouth.

It was calculated by the number of protoscoleces per milliliter as follows: the average number of user protoscoleces (10 Maekerolatr) = 28.6 capitulum as in (2.3) So the number of primates in Alumblyatr per = 28.6 X 100 = 2860 capitulum, It was required to find the approximate number of 2,000 first president (7.0 ml) with a lustrous green color, injecting nearly 2,000 first president neighborhood by medical syringe with a volume of 1 ml and 21 degrees gauge needle in the cavity Olkhalba after the injection sterilization ethyl alcohol 70% when injected mice of each rat experiment.Where she worked for three groups of mice (control, and a group of alkaloids, and a group of phenols) and each group 18 mice for each concentration (6 mice)., And then left to live for four months, was organized schedule of treatment by giving this focus (alkaloids and phenols) and oral single dose for a period of 21 days. Then I dissect mice was observed over the treatment effect by measuring the number and weight of hydatiosis and the Diameter and has also been dosage dogs at 5000 first president neighborhood, where she worked for four groups: the first protoscoleces dosage and second Balraissat for cows and the third for Buffalo and the fourth of beauty for a period of two to three months in search of eggs or adult in the feces of dogs, we did not find only in dogs Balraissat taken of sheep. So was the adoption of the preliminary experiment on hydatidosis isolated from tissues taken from sheep and leave the rest of the species not to get

experimental infection in dogs protoscoleces dosage isolated from tissue taken from cows, buffaloes and camels. I explained where the first group (Group sheep) By the time required (three months) and the other control groups, where the eggs appeared with adult dogs protoscoleces dosage cows after 6 months and 7 months after the buffalo and camels after 9.5 months. Table (A).

Preparation of extracts:

Collect samples of plant study:

Artemisia herba-alba plant was purchased from local markets dry, and have been classified in the lush vegetation of the Department of Life Sciences / College of Science / University of Babylon, took the leaves, flowers, and other parts of Hamlet. Dried after washing well at room temperature, grind mill, electric and milled material preserved in cans Court lid in the refrigerator until drawn.

The preparation of the aqueous extract :

Taking 10 grams of a mixture leaves and blossoms plant Artemisia herba-alba (5 g leaves +5 g blossoms) and mixing with 200 ml of distilled water using a blender and left for 24 hours at room temperature and 25 m. Then nominated the mixture by using several layers of medical gauze to get rid of plankton then put in a centrifuge at 3000 r / min for 10 minutes, then was nominated extracted using the nomination papers (whatmann filter paper) (diameter holes 0.45) Micro Meter to get the solution clear, dry extract using the oven the extent of 40 m and then save it in the fridge until use (Hernandez *et al*.,1994).

Preparation of crude extracts vehicles Algulwadah :

Adopted the method of the Samurai (1983) to draw vehicles Algulwadah leaves and Artemisia herba-alba. I took 10 grams of powder dry material (5 g powder leaves +5 g powder blossoms) and extracted with 200 ml of 96% ethanol for 24 hours in the extraction device (soxhlets apparatus). The resulting article focused rotary evaporator (rotary evaporator), then Azept this article in 5 mL of ethanol, and added to the alcoholic extract of 30 ml of sulfuric acid concentration of 2%. Added to this solution a sufficient amount of ammonium hydroxide concentration of 10% that became the (Hp=9) and put the solution in the basement separating funnel and add 10 ml of him Alkrufum, shaking several times. Leave the mixture to settle separated into two layers. I took the bottom layer (layer Alkrufumr) dissolved the alkaloids, the final step was restored three times. As the solution became accumulated almost 40 ml. Nominated concentrated filtrate rotary evaporator to evaporate Alkrufum Secondly, I repeated the process several times to extraction in order to get vehicles Algulwadah. Article preserved Algulwadah dry resulting in small bottles in the refrigerator until use.

Preparation of crude extracts of phenolic compounds:

Extraction of phenolic compounds of plant leaves and flowers taken 100 g (50 g powder leaves +50 g powder blossoms) of the powder and placed in a glass flask 1 liter. Added him 400 ml of 2% acetic acid. Phenolic compounds were extracted using a reflex condenser in a water bath to 70 degree C for 8 hours. After the completion of the reclamation process and leave the solution to cool down, and put the filtrate was nominated in separating funnel and add him of equal size (n-propanol) and the amount of sodium chloride until satiated, formed two

layers. I took the top layer containing phenolic compounds and neglected the lower layer. Has been the focus of upper-class rotary evaporator and put the dry matter in the refrigerator until use (riberean-gayon, 1972).

Appoint half lethal dose (LDS50):

Was prepared solutions of treasury and determine the dose half deadly alkaloids and phenols by adding 1 g of dry matter of the alkaloids and phenols and melted in a few drops of ethanol 96% and then completed the size of 100% ml with distilled water, thereby became the concentration of the solution of the original 1% or the equivalent of 10 mg / ml were identified on the value of the dose half-lethal (LD50) of alkaloids and phenols extracted from the leaves of Artemisia herba-alba and dosage the white mice (Balb/c) orally these active substances and monitored during the 24-hour notice signs of lethargy or inactivity or death and the start dose of the very few and progressively until they come to know Half lethal dose, according to the following equation depending on the law (Litchfield & wilcoxon,1949) and schedule (1) according to the law the following:

L.D.50= Half lethal dose

Highest dosage=The highest dose achieved a 100% kill

ab)= Total of multiplying by a * b (Table 1)
a=The difference between the amount of potions

b=The total number of dead animals per dose (previous + subsequent / 2)

n=The number of animals used per dose
After knowing lethal dose of alkaloids and phenols (Table 1) were tested three concentrations of alkaline (270, 240, 140) against three phenolics (280, 260, 160), which represents (at least from drug dosage, dosage, and the top of the drug dosage).

Statistical analysis

Statistical analyzes were performed on the results using the box (T-test) to compare with the natural proportions of the rates and deviations of rates and standard deviations (mean+S.D) at a certain level (waker and shostak,2012).

Results and Discussion

Shown in Table (1) determine the dose lethal half (L.D.50) and dosage of Artemisia herba-alba extracts in female albino rats. Where were divided into seven totals in each group (6 rats) were fed to each group dosage (0.25, 3.0, 2.5, 1.5, 0.5, respectively) have been counting the number of dead animals and calculate the amount of the difference between the potions (a) and the total number of dead animals per dose, so that the previous / most entitled / 2 represents (b). Then it had been multiplied the column ($b^x a$) for each dose of aggregates mice dosage collected and extracted half lethal dose equivalence referred to in working methods.

The table (2,3) shows the initial number of protoscoleces, as well as vital in primates 50 micrometers and five replicates, respectively. Where the rate was the arithmetic average of the vitality of protoscoleces at zero treatment (28.6 4.44), while the rate was at 24 (26, 2.93), also shows that the total number of live capitula ranged between (144-151), Chairman, and the average number of live primates ranged between (135-144). The percentage of vital protoscoleces initial 94.83% (Table).
The table (4) shows the effect of alkaloids and polyphenols in Qatar hydatidosis in high

school and members of the infected mice treated with different concentrations of the active substances for a period of three weeks. Where rates ranged diameters of these bags for the groups treated mice Balgulwadat (01/04 to 05/04) mm and phenols (08/03 to 04/04) mm and give these results were significant differences when compared with the control group of untreated positive, but the rates of these diagonals for both groups were relatively lower than the positive control untreated (6.0) mm. The preparation of these bags in the liver which is also significant differences when compared with the positive control group of untreated (8.0) after a relatively decreased.

The table (5) shows the rate of the weight of the hydatidosis secondary and therapeutic efficacy relative to mice treated with different concentrations of alkaloids and phenols for 21 days, as it was found that the weight of the hydatidosis decreases are relatively small with the increase in the concentration of the active, but gave significant differences using statistical analysis when compared with control cation. As it reached the lowest rate for the total weights of the hydatidosis in the secondary mouse to focus 270 per Mcgm / ml for alkaloids is 0.0257 g. The phenols was the lowest rate for the total weights is 0.0258 g for concentration of 280 Mcgm / ml, and these weights are lower than the positive control group amounting to 0.049 gm. The therapeutic efficacy increase thereby increasing the focus and the differences were significant, as was the highest level for each of the alkaloids 270/280 Mcgm /ml and phenols Mcgm / ml (55.17% and 48.27%, respectively).

The table (6) shows Average weights of the liver, spleen, lung and coefficient amplified in the totals mice infected with hydatidosis and secondary treatment concentrations of phenolics and alkaloids for a period of 21 days. Appeared that the rate of these weights has not decreased significantly reduced when compared to control negative non-infected, but relatively less than the control positive only infected and untreated, as the concentration of 270 Mcgm / ml of alkaloids better within this group where the weights of the liver, spleen and lung (2.04 0.26, 1.311 + 0.18, 0.059 0.05) g, respectively, while the coefficient was amplified (64.55, 8.22, 5.69, respectively) as well. Either phenols was a concentration of 280 mg / ml is the most influential in the weights of the liver, spleen and lung (2.2 0.149 0.25 0.067, 0.24 0.065) g, respectively, and the coefficient of amplified was (64.32, 7.30, 7.01, respectively) as well, and statistical analysis showed it there relatively large decline when compared with untreated control positive.

The table (7) shows that a drug Almbindasul concentration of 6.6 mg / ml stopped the movement of worms after 14 minutes and the cause of her death during the 41 minutes, the aqueous extract of the Artemisia herba-alba and Berkiz 10% has led to immobilizing worms 0.6 minutes and death within 34 minutes, While the addition of phenols and concentration of 3.5% to paralyze worms in 10 minutes and she died after 19 minutes, while the addition of alkaloids concentration of 0.5% to paralyze worms after 11 minutes and died after 20 minutes, and in the control group inhibited movement of worms in the normal saline after 400 minutes and 540 minutes after she died. When a statistical analysis showed significant differences between the control group and transactions in the event of an interruption or inhibition of movement of worms, as well as in the case of the death of worms at a level of significance above 0.5 in both cases.

Half lethal dose=3.0-0620833 =2.379167 mg/kg~ 2.4mg/kg

And dividing by (10) The drug dosage (0.24) mg / kg = 240 micro g / kg of the weight of the mouse in the same way and extracted half the dose lethal to phenols (2.6) mg / kg and dividing by (10) are almost Dosage (0.26 mg / kg) = 260 micro gram of mouse weight.

Hydatidosis of common diseases in the world and has economic and social impact can be attributed to the spread of the disease to two reasons: the first is the inability to detect infection in the early stages because it does not show symptoms until after increasing the size of hydatidosis, leading to pressure on the tissue surrounding him, but The second reason is the loss of therapeutic means, and is similar to the disease in the unity of the spread of cancerous tumors in metastastasis (Naguleswaran *et al*.,2006)

The current study involved testing the efficacy of alkaloids and polyphenols isolated from leaves extract Artemisia herba-alba, and more recently found that the use of the plants and extract mixed with compounds Abannzimidasul make it more effective than if these chemical substances alone (Chai *et al.*,2002). The hits influential leaves extract Artemisia herba-alba back to the chemical content of active substances such as chlorofluorocarbons alkaloids and Phenols and flavonoids and Tannins and Lactine (Al rubayai, 1999). Has interpreted the process of inhibition caused by compounds alkaloids being overlapped in a series of reactions of metabolism of proteins necessary for the continued vitality of the microorganism, and the ability to break down the cell wall and its content of proteins and fats, and then the destruction of the parasite (Cowan, 1999) may also explain the effectiveness of alkaloids based on the inhibition of metabolism carbohydrate through influence the mitochondria and then obstructing breathing mechanism (Delorenzi *et al.*,2001). Notes from the table (1) that the dose pharmaceutical alkaloids and phenols plant Artemisia herba-alba is (260.240) Micro g / kg from body weight mouse and these potions is an approach somewhat to the study (Mustafa & Khazriji, 2008) (250.270) Micro g / kg of alkaloids and polyphenols on, respectively, and these ratios extracted from low-lying due to the fact that the Artemisia herba-alba is poisonous plants which contain compounds Gulwadah many very toxic if taken incorrectly by human and animal (Al rubayai, 1999).

By the results that have been reached in the table (2.3) with respect to test vital protoscoleces has adopted a phenomenon force watery Eocene dye and it is difficult to distinguish between protoscoleces live and dead only through force of this dye, protoscoleces imbued green natural is alive but that takes the red color are dead (Al aboudy, 2001; Risan, 1994) and by observing the results of the study table (4) that the alkaloids clear impact and morally in reducing the proportion of vital capitula as suited directly proportional to the increase in concentration and this is consistent with the findings of each of (Mustafa & Khazriji, 2008; Ma *et al*., 2007 and Al-Nakeeb, 2004) in order to do Synergistic these alkaloids in addition to it's working to increase the absorption and lead to the emergence of fatty droplets in clusters with Glycogen enzymes case and also lead to the loss of vital organelles and crash the nuclei of cells generated in the protoscoleces and then to her death (Gidado *et al.*,2007)

The phenols was a significant effect in reducing the vitality of protoscoleces fit this effect is directly proportional to the concentration and duration of keeping protoscoleces as it led to a significant decrease in the rate of SMA vital protoscoleces and this is agree with the

findings of the (El-Totki *et al*., 2008) and study Humairi (2010), may be due The reason that the phenols have impact on the enzyme Acetyle-choline estrase dominating the flexibility and permeability of the cell membrane, as phenols that have loose there permeability of there membrane, which led to the entry of various materials and toxic without regulation and then the death of the parasite (Naguleswaran *et al*.,2006).

Observed low weight and small diameter and preparing the hydatidosis and members of the affected table (4) and this decrease was not significant when compared with the control for mice treated with alkaloids and phenols, but these differences were significant when compared to the untreated control positive. This could perhaps be interpreted depending on the chemical content of the extract alkaloids and phenols referred to earlier, especially alkaloids as indicated Recent studies behavior as catalysts for cellular and Humoral immunity and in mice infected with diseases involving organizing Necrosis Tumor factor, one of the types of Cytokines, which mediates inflammation occurring in the body through the stimulation of T-lymphocytes and the production of (lL-2), which raises the efficiency of the immune system and increase susceptibility to phagocytic cells to attack foreign objects, (Maizeles & Yazdanbakhsh, 2003; Xingming *et al*.,2009). As well as phenols, which proved to influence the anti-growth microorganisms even when using concentrations of low-lying ones (Naguleswaran *et al*.,2006) and this view is consistent with what referred to each of the (Al-Tmimy, 2001; Reddy, 2009 and Al hammery, 2010) in that the cause of resistance to mice infected with a variety of pathogenic bacteria is to use Abstract alcohol Artemisia herba-alba that activates cellular immunity by stimulating T-lymphocytes and then activate cytokines such as (Ll-1 the catalyst for the cells to produce T-lymphocytes (lL-2) which leads to the elimination of bacteria. These results are consistent with the findings of the (Ma *et al*., 2007), which pointed out that the alkaloids lead to damage nuclei of hydatidoosis parthenogenesis.

Table (5) shows the existence of hydatidosis secondary in the totals mice infected and treated by alkaloids and phenols in three weeks, as distributed injuries in the liver primarily lungs and secondly, spleen third place, also showed control of positive and there are secondary hydatidosis in its members and in blocks grouped and had liver injury more common, it has been observed that some of the bags were planted partially in its fabric, while others were glued to the body lobed spherical varying size and possibly attributed the cause to the same influences that previously reported for the alkaloids and phenols was observed in the current study, an increase in the weights of the liver, spleen, lung and coefficient amplified in group control positive and concentrations of active few table (6), has been attributed to frequent granulomas and Necrotic foci that change the nature of these tissues, as well as large numbers of parasites in these organs, leading to the failure of the host to resist the parasite and control, has attributed the causes of inflation of spleen to a proliferation lymphocytes as a result of division and the impact of activation and secretion of monokenes and this natural result for the fact that the nature of the spleen, the largest member of lymphoma in the production of specialized antibodies to the parasite antigens (virella & Tomlinson, 2007).

Table(A) Period time for appearance of E. granulosus eggs in experimentally infected dogs by protoscoleces

months / Animals type	Jun. 2012	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
sheep	0	0	3 dogs	0	0	0	0	0	0	0
cows	0	0	0	0	0	3 dogs	0	0	0	0
buffalo	0	0	0	0	0	0	3 dogs	0	0	0
camels	0	0	0	0	0	0	0	0	3 dogs	0

Table.1 Determine the half lethal dose (L.D.50) and dose pharmaceutical alkaloids leaves and flowers of wormwood plant in female of the white mice

Dose Mg / kg	**The number of animals**	**Number of dead animals**	**The difference between the amount of potions (a)**	**Number of dead animals (previous / followed)**	**$a^x b$**
0.25	6	0	-	-	-
0.5	6	0	0.25	0	0
1.0	6	1	0.5	1	0.5
1.5	6	2	0.5	2	1.0
2.0	6	4	0.5	2	1.0
2.5	6	5	0.5	1.25	1.625
3.0	6	6	0.5	1.2	0.6
					Σab=3.725

L.D.50=3.0-3.725/6

Table.2 the average number of protoscoleces in 10 Maekerolatr for five replicates in a manner calculated size hard and different time periods

Rate treatment (hours)	**The calculated number of protocoleces in 10 Micro-liter five for replicates**					**The average number of protoscoleces +D.S**
	1	2	3	4	5	
0	35	31	26	22	29	4.44+28.6
12hours	27	23	33	26	31	3.52+28
24hours	24	22	29	28	27	2.93+26

Table.3 the rate of the arithmetic average of the vitality of protoscoleces in 50 Micro-liter five replicates

Replicates	1	2	3	4	5	total	The arithmetic S.D+
The rate of the total number of capitula	147	148	144	145	151	537	3.6+147
The average number of live protoscoleces	140	144	140	135	138	697	3.3+139.4
The average number of dead protoscoleces	5	7	7	9	10	38	2.9+6.7
%	97.33	99.66	97.0	96.33	99.66	94.83	

Table.4 The effect of alkaloids and phenols leaves and blossom Artemisi herba-alba in the diagonal of the secondary hydatidosis members infected experimental mice and treated with different concentrations within three weeks

Article learned	Concentrations Micro g / ml / mouse	Diagonal of the bags rate (mm)	The average number of bags			Standard deviation ± S.D
			Liver	spleen	total	
alkaloids	140 340 170	4.6 3.3 4.1	3 3 3	2 1 0	5 4 3	1.49± 1.42± 1.43±
	L.S.D	0.5	1.1			
phenols	160 260 280	4.5 3.8 3.8	2 3 3	0 0 0	2 3 3	1.48± 1.41± 1.29±
	L.S.D	0.6	1.2			
Domination	+ -	6.0 0.0	8.0 0.0			1.55± 0.0

Significant differences under the 0.05 level

Table.5 Average weight of hydatidosis and therapeutic efficacy in mice relative infected and treatment with different concentrations of phenolics and alkaloids extracted from Artemisia herba-alba within three weeks

Article learned	Focus Mcgm / ml / mouse	Average weight of secondary per bag	The average number of the secondary hydatidosis members infected				Therapeutic efficacy relative (%)
			Liver	spleen	Other organs	The total number	
alkaloids	140 240 270	0.0261 0.0242 0.0258	3 3 3	2 1 0	14 13 10	19 17 13	34.48 41.37 55.17
	L.S.D	0.20				2.5	17.8
phenolics	160 260 280	0.0280 0.0268 0.0257	2 3 3	0 0 0	17 15 12	19 18 15	34.48 37.93 48.27
	L.S.D	0.19					
Domination	+ -	0.049 0.0	6 0.0		23 0.0	29 0.0	0.0 0.0

Significant differences under the 0.05 level

Table.6 the rate of weight coefficient member and amplified in the totals mice infected secondary hydatidosis and treated with different concentrations of alkaloids and polyphenols in three weeks.

Article learned	Focus micro g / ml / mouse	Average weight of mice after treatment ± standard deviation	The rate of liver weight (g) ± standard deviation	Coefficient of inflation	Average weight of the spleen ± standard deviation	Coefficient of inflation	The rate of lung weight (g) ± standard deviation	Coefficient of inflation
Alkaloids	140 240 270	1.135±32.8 1.543±33.7 1.206±31.6	0.483±2.375 1.204±2.13 1.310±2.64	72.39 20.63 64.55	0.030±0.28 0.05±0.28 0.058±0.26	8.53 8.30 8.22	0.009±0.27 0.088±0.183 0.05±0.18	8.23 5.43 5.69
	L.S.D	1.1	0.11	6.1	0.10	2.4	0.01	0.53
Phenols	160 260 280	1.658±33.8 1.038±31.5 1.021±34.2	0.12±2.38 0.246±2.3 0.149±2.2	70.41 73.01 64.32	0.05±0.29 0.051±0.26 0.067±0.25	8.57 8.25 7.30	0.025±0.29 0.016±0.29 0.065±0.24	8.58 8.25 7.01
	L.S.D	1.21	0.5	8.10	0.11	1.9	0.15	1.16
Domination	Negative(-)	1.5012±34.2	0.39±1.388	40.58	0.02±0.16	4.67	0.25±0.162	4.73
	Positive(+)	1.232±36.4	0.258±2.61	71.70	0.029±0.34	9.34	0.032±0.32	8.79

Significant differences under the 0.05 level

Table.7 Determine the time required to immobilize the worms and the time required for the death of worms

Type of transaction and conc.	The time required to immobilize worms (min)	The time required for the death of worms (min)
Phenols (3.5%)	10	19
Alkaloids (3.5%)	11	20
Aqueous extract (10%)	0.6	34
Minbdasul (6.6 mg / ml)	14	41
Physiologic saline solution (0.85%)	400	540
X^2 Calculated **X^2 Tabulated**		*6.5 5.99

It also attributed the increase in the weight of the liver and lung to the severity of the inflammatory reaction as well as the increase in the formation of granuloma and the migration of cells only and citrus to the site of infection in the liver and lung (lightowlers *et al.*,2003). These findings are consistent with researchers (Ali-khan a,b, 1978; Gottstein & Hemphill, 1997; Abraham, 2000 and Humairi, 2010) who pointed to inflation in the liver and clear so as to vie with the result of tissue injury sacks virginity.

The effect of phenols, alkaloids, aqueous extract, the normal saline and Albendazole in immobilizing the adult worms and death came varying as they are in the table (7) was the effect of phenols first killing worms in the bottle faster than the rest of the CAS and a maximum of 19 minutes and was followed alkaloids b (20) minutes and the aqueous extract b (24) minutes and Alimdasul b (41) minutes and finally the normal saline (540 minutes) and came this result matched the findings of the (Al-Moussawi,2000) when he studied the effect of extracts of Artemisia herba-alba water and alcohol in immobilizing and death tapeworms *H.nana*.

It can be concluded from this study that the alkaloids and phenols leaves Artemisia herba-alba impact of a strong and effective against hydatidosis in vivo for mice infected at larval stage (cysts) that were treated compared to control positive and this is probably due to the active substances Pharmaceutical in this plant.

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