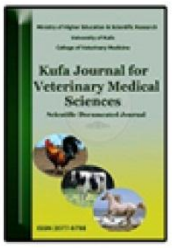
Kufa Journal for Veterinary Medical Sciences Vol.4 No.2 (2013) 51-62

Kufa Journal for Veterinary Medical Sciences
www.vet.kufauniv.com



The Clinical and Hematological changes in rabbits exposed to leaves of Urtica dioica under experimental conditions

Al-Khafaji Nazar Jabbar Al – Zubaedi Raad Mahmood

Department of Medicine, College of Veterinary Medicine, University of Diayla, Iraq
E-mail: Raad75m@gmail

Abstract:

The study was conducted on 20 female local breed rabbits , of 1-2 years age , of 1- 2 kg body weight . In first part of the study , 10 animals were randomly divided into two groups of 5 each. The first group was exposed to leaves of Urtica dioica in green phase at a dose rate of 50 grams / kg b.w daily for 10 days , while those of the second group left without exposure as a control group . In the second part of the study , animals of the first group exposed to leaves in dry phase , at a dose rate of 5 g/kg b.w. daily for three weeks, as a powder mixed with the concentrated food. While those of the second group left as a control group without exposure. The main dependent parameters in the study were ,clinical parameters (body temperature , heart beat , respiratory rate, body weight , in addition to monitor any abnormal signs appear on the animals) . The main hematological parameters which depended in the study were included , RBC count , WBC count , Hb concentration , PCV percentage , Red cell indices , Bleeding time and Clotting time .

The results of the study revealed the following : In first part clinically ; some rabbits showed strong heart beat , in other heart beat decreased ; respiratory rate decreased with noisy vesicular murmurs were heard . Body weight and body temperature were decreased. In the fourth day post exposure to plant one rabbit showed softy feces . In the 16^{th} day post exposure one animal died , followed by another on in 18^{th} day of the experiment . The post mortem findings were pale mucous membranes , stomach impacted with food with ulceration of mucus membranes . severe congestion of liver and gastrointestinal tract . sever swelling of kidney , urinary bladder filled with urine of dark yellow color .Hematologically clotting time prolonged , with decrease PCV , and White blood cells counts ; while Hb concentration did not showed any changes

In second part: Heart beats , respiratory rates and body temperature were increased , while body weight decreased . Prolongation of clotting and bleeding time .The hematological pictures revealed that , Hemoglobin level and PCV values were decreased .The total erythrocyte count did not showed any significant changes during the study . The mean corpuscular volume and mean corpuscular hemoglobin ,the mean corpuscular hemoglobin concentration were significantly decreased .The total leucocytes count ,the percentage of heterophils, and monocytes percentage were increase. The lymphocytic and, esinophils percentage were significantly decreased .The basophiles values did not showed any significant changes during the study.

Keywords: Urtica dioica ,Rabbits .

التغيرات السريرية والدموية في الأرانب المعرضة على أوراق نبات القريص (Urtic dioica) تحت الظروف التجريبية

الخفاجي، نزار جبار الزبيدي، رعد محمود

فرع الطب الباطني، كلية الطب البيطري، جامعة ديالى، ديالى، العراق

الخلاصة :

شملت الدراسة والتي أنجزت على 20 أنثى من الأرانب المحلية ، بعمر 1-2 سنة ، ووزن 1- 2 كغم على جزئين ، 10 أرانب في كل جزء. قسمت في كل جزء إلى مجموعتين ؛ عرضت المجموعة الأولى على أوراق النبات الخضراء وبجرعة 50غم \ كغم ، يوما لمدة 10 أيام . ، وتركت المجموعة الثانية بدون تعرض كمجموعة سيطرة. في الجزء الثاني عرضت المجموعة الأولى على مسحوق أوراق النبات الجافة بواقع 5 غم \ كغم ،يوما لمدة ثلاث أسابيع. شملت المعايير الرئيسية المعتمدة على التغيرات السريرية والتي تضمنت حرارة الجسم ، وزن الجسم ، معدل التنفس وضربات القلب . أما المعايير الدموية فتضمنت على عد خلايا الدم الحمر ، وتركيز خضاب الدم ، حجم الخلايا المرصوصة ، معدل حجم الخلية ، معدل خضاب الخلية ، ومعدل تركيز خضاب الخلية . فضلا عن زمن التخثر والنزيف .

أظهرت نتائج الدراسة : في الجزء الأول سريريا ؛ أظهرت بعض الحيوانات ضربات قلب قوية ، وفي الأخرى هبط عدد ضربات القلب .معدل التنفس هبط مع سماع أصوات نفحية ضوضائية في البعض، هبوط حرارة الجسم ووزن الجسم . في اليوم الرابع بعد التعرض ظهر براز لين . هلك احد الحيوانات في اليوم السادس عشر وأخر في اليوم الثامن عشر. التغيرات في الصفة التشريحية كانت شحوب الأغشية المخاطية، المعدة متخمة بالغذاء، تقرح الأغشية المخاطية، احتقان شديد للكبد، والقناة الهضمية. تورم شديد للكلى ، المثانة ممتلئة بالبول الأصفر الداكن . شملت التغيرات الدموية على إطالة التخثر ، مع هبوط حجم الخلايا المرصوصة ، وعدد الخلايا البيض : تركيز الخضاب لم تظهر تغير . في الجزء الثاني : زيادة ضربات القلب ، معدل التنفس ، وحرارة الجسم . وهبوط الوزن . إطالة زمن النزف والتخثر . أظهرت التغيرات الدموية أن عدد خلايا الدم البيض ارتفع ، المختلفات ارتفعت ، بينما مستوى الخضاب هبط وحجم الخلايا المرصوصة . أعداد خلايا الدم الحمر لام تظهر تغير معنوي .معدل حجم الكريه ومعدل خضاب الكريه ومعدل تركيز خضاب الكريه هبطت . أعداد خلايا الدم البيض ارتفعت ، ونسبة المختلفات ارتفع الخلايا الأحادية ارتفعت ، نسبة اللمفاوية هبطت ، والحمضات هبطت ، القعدات لم تتغير.

مفتاح الكلمات : القريص ،الارانب.

Introduction:

Urtica is a genus of medical plant which belonged to family Urticaceae (1- 4) .In Iraq Urtica present in three species Urtica dioica ; U. urens ; and U. pilulifera . The Urtica dioica found in north and center of Iraq , and can cultivate in October till March of the following year (5) .

Urtica classified as toxic plant due to its , contain material similar to histamine , acetylcholine .The primary chemical of analysis of the dried leaves indicate the presence of alkaloid, phenols , glycosides , tannins , resins , saponin and flavonoids (7). The two most prevalent active chemicals agents found in the stinging nettle are formic acid, and histamine which function as anti- inflammatory agent (7). In addition the extract of leaves contain coumarins with small amount . This study was planned to observe the side effects of plant's leaves in fresh and dry form from the clinical and hematological points of views under experimental conditions.

A preparation of 2- 3 gm of powdered root , and 3-4 gm of leaf tablets / capsules can be substituted for prevention of prostate difficulty (8).

(9) referred to LD50 of leaf of Urtica for rats was 1.92 gm / kg b.w.; (10) the leaves in dry or fresh form , was save at a dose rate of 8- 12 gm , while the root was save at a dose rate of 4-6gm . (7) estimate the LD50 of Urtica for rats 3091 mg / kg b.w.

Material and methods:

The study was conducted on 20 female local breeds rabbits of 1 – 2 kg , , 1-2 years old . They were feed concentrated and green food , and left ad libitum for water . They kept in room of 20- 25 ^{o}C . 10 animals in each of the two parts were divided into two groups each of 5. In the first part of the study , the first group was exposed to plants of leaves in green phase at a dose rate of 50 grams / kg b.w. daily for 10 days , while those of the second group left without exposure serves as a control group . In the second part of the study , the first group exposed to leaves of plant in dry phase . They receive the plant as powder form mixed with the food at a dose rate of 5 g/ kg b.w. daily for three weeks , while those of the second group left as a control group without exposure .

The dependent parameters were the clinical signs that appear on the animals in addition to the body weight , body temperature , respiratory and heart beats . Hematologically we take blood sample in vials containing EDTA as anticoagulant to determine , RBC , WBC , Hb , PCV , Red cell indices , Bleeding time , Clotting time) (11) . in addition to the postmortem findings of the dead animals. The results were statistically analyzed by t test , LD50 (the least significance difference , with $P < 0.05$ and $P < 0.01$) according to (12) .

Results:

In first part of the study , clinically there were, strong heart beat in one rabbit in 4th day post exposure .heart beat did not showed any changes . Noisy vesicular murmur were heard in respiration in 4th day . During the 4th day , the respiratory rates increased , which was significant at a level of ($P < 0.05$) in comparison with pre- exposure value . and at a level of ($P < 0.01$) in comparison with the control group . in the 8th day respiratory rates decreased significantly at a level of ($P < 0.01$) in comparison with pre-exposure . in the 18th day deceased to a level of ($P< 0.01$) in comparison with pre- exposure and at a level of ($P> 0.05$) with the control group table (1). Body temperature decreased in the 4th , 8th , and 18th days exposure to plant . and was significantly different at a level of ($P< 0.01$) in comparison with the pre-exposure values . in 18th day it was significantly different with the control group at a level of ($P < 0.05$) (Table -1).Body weight was significantly decreased during the study at a level of ($P < 0.01$) in comparison with the control group (Table -1).

In the fourth day post exposure to plant one rabbit showed softy feces . In the 16th day post exposure one animal died , followed in 18th day by another one . the post mortem findings were pale mucous membranes , stomach impacted with food with ulceration of mucus membranes . severe congestion of liver and gastrointestinal tract . sever swelling of kidney , urinary bladder filled with urine of dark yellow color .

Table -1- showing the body temperature, respiratory rates , heart beats , body weight - first part

Parameter / Group		Day 0	Day 4	Day 8	Day 18
Body temperature ^{o}C	Treated	38.93 ± 0.27	38.4 a** ± 0.52	38.52 a** ± 0.37	37.8 a**cA* ± 0.26
	Control	38.93 ± 0.27	38.94 ± 0.43	38.62 ± 0.60	38.66 ± 0.43
Respiratory rate / minute	Treated	125 ± 7.90	140 a*A** ± 15.81	115.2b*A* ± 24.60	119.33A** ± 11.01
	Control	125 ± 7.90	112.6 ± 8.59	128 ± 5.29	137 ± 4.47
Heart beat Beat / minute	Treated	245.3 ± 21.33	247 ± 12.04	243.2 ± 11.88	246.66 ± 12.58
	Control	245.3 ± 21.33	242.6 ± 24.36	254.8 ± 18.30	224.8 ± 22.02
Body weight Kg	Treated	1268 ± 88.40	1224 A** ± 68.77	1140A** ± 40.5	1100 A** ± 100
	Control	1268 ± 88.40	1606 ± 126.21	1600 ± 68.7	1576 ± 111.93

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

Total white blood cells in the 18th day post exposure it decreased , which was significant at a level of (P < 0.05) in comparison with pre- exposure time and with value in the 4th day (table - 2) . Prolongation of clotting time in the 4th and 18th day of the study which was significant at a level of (P < 0.05) in comparison with level of pre- exposure. In the 8th day was significantly differ at a level of (P < 0.01) in comparison with the pre- exposure time(table - 2) . hemoglobin level did not showed any significant changes .In the 8th day post exposure PCV values , decreased which was significant at a level of (P < 0.05) in comparison with pre – exposure level and at a level of (P< 0.01) in comparison with the control group (table - 2) .

Table -2- showing Total leucocytic count , Hb concentration , Packed cells volume , clotting time – first part

Parameter	Group	Day 0	4	8	18
Clotting time Seconds	Treated	27.1 ± 3.85	32 a* ± 7.58	33 a** ± 4.47	38.33 a* ± 7.63
	Control	27.1 ± 3.85	33 ± 4.47	35 ± 7.07	33 ± 11.51
Hb g/ dl	Treated	13.4 ± 1.68	14 ± 1.58	13.14 ± 0.77	13.16 ± 1.04
	Control	13.4 ± 1.68	12.66 ± 2.01	13.66 ± 1.45	13.08 ± 0.65
PCV %	Treated	24.4 ± 3.58	26.8 ± 4.38	22 bA** ± 2.12	24 ± 5.29
	Control	24.4 ± 3.58	25.4 ± 5.36	26.8 ± 3.42	30 ± 3.93
WBC X 10^3/µl	Treated	5190 ± 602.26	5380 ± 327.10	5290 ± 963.32	3916.66 ab* ± 629.15
	Control	5190 ± 602.26	5420 ± 1008.46	6110 ± 1007.72	4170 ± 884.30

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

Second Part:

The body temperature was significantly decreased , during the first week post exposure which was significant al a level of (P < 0.05) in comparison with pre-exposure . During the second week post exposure it was lowered than the value of the first week , which was significant at a level of (P < 0.05) . During the thirds of experimental week it increased , which was significantly differ at a level of (P < 0.05) in comparison with the pre- exposure level , and at a level of (P < 0.01) in comparison with the value of control group (Table 3) .

The respiratory rates , increased during the first week post exposure it was significantly lowered in comparison with control group at a level of (P < 0.01) . During the second week post exposure the level increased , which was significant at level of (P < 0.05) in comparison with pre- exposure level . During the third week post exposure increased to the maximum level ,which was significant at a level of (P < 0.05) in comparison with the level in pre-exposure time and with value during the first week post exposure (Table 3) .

Heart rates was not significantly increased during the first week post

exposure . During the 2nd , and 3rd week post exposure the level increased significantly ,at (P < 0.01) in comparison with the level in pre- exposure and during the first week post exposure to plant . (Table 3) .

The body weight decreased not significantly during the experiment .

Table -3- showing : Body temperature , Respiratory rate , Heart beat, Body weight – Second part

Parameter / Group		Week 0	1	2	3
Body temperature ^{o}C	Treated	37.89 ± 0.32	36.92 a* ± 0.40	37.76 b* ± 0.42	38.18 a* b A** ± 0.09
	Control	37.89 ± 0.32	37.85 ± 0.32	37.02 ± 0.36	37.17 ± 0.18
Respiratory rate / minute	Treated	106.6 ± 6.05	122.8 A** ± 20.15	143.2 a* ± 16.89	177.2 ab* ± 20.23
	Control	106.6 ± 6.05	130 ± 17.35	131 ± 8.10	136.25 ± 15.65
Heart beat Beat / minute	Treated	236.2 ± 12.48	231.2 ± 21.0	286.8 ab** ± 10.86	316 a b** ± 27.93
	Control	236.2 ± 12.48	240 ± 14.36	241.5 ± 33.09	245.5 ± 41.70
Body weight Kg	Treated	1.44 ± 0.13	1.488 ± 0.14	1.332 ± 0.15	1.338 ± 0.14
	Control	1.44 ± 0.13	1.46 ± 0.18	1.49 ± 0.15	1.47 ± 0.12

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

The bleeding time was significantly increased at a level of (P < 0.05) in comparison with the pre- exposure time level , during the first week post exposure . During the second week post exposure the bleeding time decreased , which was significantly differ in comparison with level during the first week at as level of (P < 0.05) but it still higher than pre-exposure .(Table 4) .during the 3rd week the bleeding time was not significantly higher than the pre- exposure time . (Table -4) .

The clotting time was significantly increased at a level of (P < 0.05)during the 1st , and 2nd week post exposure to plant in comparison with the level of control group . During 3rd week post exposure to plant it increased ,which was significant , at a level of (P < 0.01) in comparison with the level during the pre-exposure time and control group(Table 4).

Table -4- Showing Bleeding time , Clotting time – Second part –

Parameter / Group		Week			
		0	1	2	3
Bleeding time second	Treated	18.1 ± 7.01	41.4 a* ± 9.21	23 b* ± 3.40	29 ± 3.32
	Control	18.1 ± 7.01	20 ± 7.90	21 ± 6.12	23.75 ± 9.43
Clotting time Second	Treated	33.2 ± 4.33	47 A* ± 8.77	41 A* ± 7.16	68 aA** ± 7.01
	Control	33.2 ± 4.33	18.75 ± 2.39	20.25 ± 8.26	21.75 ± 13.90

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

The total erythrocytes count did not showed any significant changes during the study .

The hemoglobin value was significantly decreased at a level of (P < 0.05) during the 1st , 3rd weeks in comparison with pre- exposure , and at a level of (I P < 0.01) in comparison with level of control group . During the second week post exposure the level was significantly different at a level of (P < 0.05) in comparison with the pre-exposure time) (Table 5) .

The level of packed cells volume were significantly decreased at a level of (P < 0.05) in comparison with the level in pre – exposure time . During the first , second and third week (table 5) .

The mean corpuscular volume and mean corpuscular hemoglobin were non significantly increased during the first week , but decreased significantly during the 2nd week , at the level of (P < 0.05) in comparison with pre- exposure and control group in case of MCV , and with control group in case o0f MCH (Table 5) .

The mean corpuscular hemoglobin concentration did not showed any significant changes during the experiment .

Table -5- Total Erythrocytic count , Hb concentration , Packed cells volume , Mean cell volume , Mean cell hemoglobin , Mean cell hemoglobin concentration.

Parameter / Group		Week 0	1	2	3
RBC $X10^6/\mu l$	Treated	4.8 ± 0.51	4.13 ± 0.43	5.72 ± 0.91	4.77 ± 0.13
	Control	4.8 ± 0.51	4.34 ± 0.45	4.87 ± 0.34	4.87 ± 0.46
Hb g/dl	Treated	12.39 ± 0.44	11.2 a* A** ± 0.49	11.02 a* ± 0.48	10.94 a* A** ± 0.59
	Control	12.39 ± 0.44	12.075 ± 0.56	12.25 ± 0.67	12.55 ± 0.70
PCV %	Treated	35.6 ± 2.05	33 a* ± 1.45	32.2 a* ± 1.46	32.2 a* ± 1.74
	Control	35.6 ± 2.05	35.5 ± 1.55	36 ± 1.91	34.75 ± 0.75
MCV Fl	Treated	76.30 ± 8.69	82.64 ± 7.11	63.02a A* ± 10.65	67.81 ± 5.06
	Control	76.30 ± 8.69	74.38 ± 9.05	76.36 ± 13.14	73.36 ± 7.21
MCH Pg	Treated	26.73 ± 3.07	28.04 ± 2.43	21.55 A* ± 3.62	23.03 ± 1.73
	Control	26.73 ± 3.07	28.70 ± 3.12	25.30 ± 5.63	26.24 ± 1.97
MCHC g/dl	Treated	35.32 ± 1.73	35.73 ± 1.89	36.03 ± 1.77	33.97 ± 0.18
	Control	35.32 ± 1.73	34.68 ± 0.66	34.01 ± 0.13	36.16 ± 2.16

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

The total leucocytes count was significantly decreased during the first week , which was significant at a level of P< 0.05 in comparison with control group . During the second and third weeks post exposure increased at a level of (P < 0.05

) in comparison with the level during the first week post exposure (Table 6) .

The neutrophil percent level was not significantly decreased during the first week post exposure to plant . during the second week it increased significantly at a level of (P < 0.05) in comparison with the level of pre-exposure time and in level in the first week post exposure to plan . during the third week post exposure it decreased significantly ,which was significant at a level of (P < 0.05) in comparison with the level in second week post exposure (Table 6) .

During the first week the lymphocytic percent was significantly increased at a level of (P < 0.05) in comparison with the pre-exposure value . During the second week the level decreased ,which was significantly differ a level of (P < 0.05) in comparison with the pre-exposure value and at a level of (P < 0.01) in comparison with level in first week post exposure to plant . During the third week the level was higher than the level of 2nd week which was significant at a level of (P < 0.05) in comparison with the level pre-exposed (Table 6) .

During the 2nd week the esinophils percent ,was significantly decreased at a level of (P < 0.01) in comparison with the value on the first week post exposure to the plant. During 3rd week of experiment the level , was significant at a level of (P< 0.05) in comparison with level in the first week post exposure to plant (Table 6) .

Monocytes percent non significantly decreased during the 1st and 2nd weeks . but during 3rd week it significantly increased at alevel of (P< 0.05) in comparison with the level of 2nd week (Table -6).

The basopohils values did not showed any significant changes during the study (Table -6) .

Table – 6- Showing : Total leucocytic count , and differential leucocytic count

Parameter / Group		Week 0	1	2	3
WBC $X10^3/\mu l$	Treated	4460± 1.02	4250 ± 443.07 A*	6076 ± 705.02 b *	5400 ± 252.17 b*
	Control	4460 ±1.02	5700 ± 750.83	5225 ± 919.35	5137.5 ± 1191.70
H%	Treated	45.2 ± 3.33	36.2 ± 3.49	62.4± 7.22a* bA**	38.6 ± 5.50 c *
	Control	45.2 ± 3.33	39.25±3.88	34.25 ±4.02	40.25±4.00
L%	Treated	53.2 ± 2.86	56 ±4.12 a*	35 ±6.92 a*b**	54.8 ±4.46 c*
	Control	53.2 ± 2.86	42.75±4.98	54±3.87	45.75 ±3.19
E%	Treated	4.21±1.22	4.6±0.68	1±1.00 b**	2.2±0.80 b *
	Control	4.21±1.22	5±0.70	2±0.28	3.25±0.47
M%	Treated	3.21 ±0.8	2.6±0.75	1.4±0.92	4±0.70 c*
	Control	3.21 ±0.8	3.25±0.62	1.25±0.25	2.75±0.25
B%	Treated	0.5±0.24	0.4±0.24	0.2±0.20	0.4±0.24
	control	0.5±0.24	0.75±0.47	0	0

The values are Mean SE. a mean significance in comparison with 0 time of treated group , b in comparison with 1st week , c in comparison with 2nd week , A significance in comparison with control group in the same week. * significance at P < 0.05, ** at P < 0.01.

Discussion:

The results of the study revealed heart beats in first part not changed ; while in second part increased .This can be attributed to the changes in blood pictures and to the methemoglobinemia which developed in toxicosis of this plant due to its tannins content . The toxic effect of Urtica dioica is due to its content of alkaloids (13).The primary effects of alkaloids are on the cardiovascular system : decreased heart rates ; peripheral vasodilatation , and hypotension . the amplitude and frequency of respiration increase and the heart stops in diastole (14) . The water extracts of nettle , reduced heart rate , hypotensive effect in cats (15-20). The results of the study revealed decrease body temperature . This can be attributed to the water extracts of nettle , as it lower body temperature (15 - 20) . The results of the study revealed respiratory rate increased , then decreased in first part of experiment , but it increased in second part of experiment . Glycosides and amines lead to digestive and respiratory disturbances (21) . Cyanogenic glycosides , cyanide combines with iron in cellular cytochrome oxidase to prevent terminal electron transfer and blocks cellular respiration so that oxyhemoglobin cannot release oxygen for electron transport in the cytochrome system (22 -26).

The results of the study revealed prolongation of bleeding and clotting time in both parts :Dicoumarol is readily absorbed from the digestive tract and interferes with vitamin K function by competitively inhibiting the epoxide reductase enzyme essential for regenerating the active form of vitamin K (27). In the absence of adequate vitamin K , there is marked reduction in the activation of prothrombin , and vitamin K – dependent factors VII , IX , and X are consumed , which results in a hemorrhagic diathesis (28, 29). Already formed clotting factors in the blood stream are not affected .

Experimentally , commercial tannic acid was found to be mainly hepatotoxic when given parenterally to mice , rats , dogs , rabbits , guinea pigs , cattle , and goats . Oral administration of tannic acid caused periacinar coagulative and hemorrhagic necrosis of the liver in mice (30). Tannic acid given to sheep orally resulted in methemoglobinemia , whereas tannic acid given intraperitonealy to sheep and mice resulted in liver injury (30) . In another study , cattle were given tannic acid orally and developed methemoglobinemia . Toxic effect of urtica dioica due to Saponin as it has a toxic effect of Erythrocytes lysis.(31).

The results revealed a non significant changes in erythrocytes counts and Hb concentration in the first part of the study ,but hemoglobin concentration , packed cells volume decreased in the second part ; MCHC not changed in first and second parts ; MCH , MCV decreased in first and second parts .

The results revealed that WBC counts decreased in first part , but increased in second. lymphocytes percentage showed variable changes as increased in the beging, and end of study but it decreased in second week in the 2^{nd} parts , neutrophils increases during the 2^{nd} week then decreased during the 3^{rd} week of the study ; eosinophils decreased , monocytes increased . basophils no changes in the study .

References:

1.Edwards Jr EK , Edwards Sr EK .(1992) . Immediate and delayed hypersensitivity to the nettle plant . Contact Dermititis ; 27 : 264-265.

2.morgan M , Khan DA . (2003) . Stinging nettle anaphylaxis . J Allergy Clin Immunol 3 (suppl) : 98 .

3.Bossuyt L ,Dooms – Goossens A. (1994) . Contact sensitivity to nettle and

chamomile in alternative remedias .Contact Dermititis ; 31 : 131- 132.

4.Caliskaner Z , Karaayvaz M , Ozturk S .(2004) . Misuse of a herb: stinging nettle (Urtica dioica) induced severe tongue oedema . Comp Ther Med ; 12 : 57-58.

5.الراوي ، علي .(1986). النباتات الطبية في العراق.مؤتمر النباتات الطبية في الوطن العربي وافاق تطورها (24-28)تشرين الثاني |، بغداد .

6. Shivani Bisht , Snehlata Bhandari and NS B isht .(2012). Urtica dioica (L) : an Under valued , economically important plant . Agricultural Science Research Journals ; 2(5) : 250- 252 .

7.جياد،عامر حكيم. (2007) .دراسة بعض الخواص الدوائيه لاوراق نبات القريص في الفئران المختبرية (Urtica dioica).رسالة ماجستير / كلية الطب البيطري / جامعة بغداد.

8.Leslie taylor .The healing power of Rainforest Herbs .(2005).

9.Mill and Bone .(2002) . PDR for Herbal Medicines , 2nd edition : 360-364.

10.Cupp M J .(2000) .Toxicology and clinical pharmacology of Herbal products – Humana Press Inc., Totawa , New Jersy USA.

11. coles E H . (1986) . Veterinary clinical pathology , 4th ed.W.D. Saunders Company , Philadelphia , USA : 10-75 .

12.Bruning JL , and Kintz BL. (1977). Computational handbook of statistic . 1st ed. Glenview , Scott , Foresman And Co : 18-143.

13. ابو زيد، الشحات نصر. (1986). النباتات والاعشاب الطبية . دار البحار ، بيروت .

14. Spoerke DG , Spoerke SW . (1979) . Three cases of Zigadenus (death camas) poisoning . Vet Human Toxicol ; 21 : 346.

15. Helms S .(2006).Anti – allergy action – natural treatment of chronic rhinosinusitis . Allern Med Rev . 11 (3) : 196-207.

16. Thornhill S.M., KLelly A M .(2000). Natural treatment of perennial allergic rhinitis .Allern Med Rev .; 5 (5) : 448-54.

17.Mittman P . (1990) . Randomized , double – bind study of freeze – dried Urtica dioica in the treatment of allergic rhinitis . Planta Medica . ; 56 (1) : 44 – 7.

18.Konrad A , Mahler M , Arni S, Flogerzi B , Klingelhofer S, Beibold F. (2005) . Anti – inflammatory and pain actions . Ameliorative effect of IDS 30 , a stinging nettle leaf extract , on chronic colitis .Int J Colorectal Dis ; 20 : 9-17.

19. El Haouari M.(2006). Hypotensive and cardiovascular actions Inhibition of rat platelet aggregation by Urtica dioica leaves extracts. Phytother Res . ; 20(7) : 568 – 72.

20. Legssyer A , Ziyyat A, Mekhfi H.(2002) . Cardiovascular effects of Urtica dioica L.in the isolated rat heart and aorta . Phytother Res. ; 16 (6) 503- 507 .

21. البدراني ، باسمة عبد الفتاح . (2002) . التاثيرات السمية والدوائية لثمار نباتي البحبح وزعرور الزينة ، اطروحة دكتوراه ، جامعة الموصل ، كلية الطب البيطري .

22.Osweiler GD . (1996) . Toxicology , Pheladelphia .Williams and Wilkins.

23 . Murphy M .(1996) . A field guide to common animal poisons , Ames , Iowa .Iowa State University Press .

24.Fitzgerald KT .(2001) . Cyanide . In Peterson ME , Talcott PA , editors : Small

animal toxicology , Philadelphia . WB Saunders .

25.Kingsbury JM .(1964) . poisonous plants of the United States and Canada. Englewood Cliffs , NJ , Prentice – Hall.

26 . Nicholson SS .(1993) . Cyanogenic plants ,In Howard JL , editor : Current veterinary therapy : food animal practice 3 , Philadelphia , WB Saunders .

27. Pen P.(1977) . Mechanism of action of anticoagulants : correlation between the inhibition of prothrombin synthesis and the regeneration of vitamin K_1 from vitamin K_1 epoxide . J Pharm Exp Ther ; 201 : 541.

.

28. Murray RDH , Mendez J , Brown SA , editors .(1982) .The natural coumarins, New York .John Wiley and Sons .

29.Kosuge T B, Gichrist D . (1977). Chemistry of Coumarin and related compounds . In Wyllie TD , Morehouse LG , editors . Mycotoxic fungi , Mycotoxicoses New York , Marcel Dekker

30.Zhu J et al . (1992) . Tannic acid intoxication in sheep and mice . Res Vet Sci .53 : 280)

31 . Plumice KH et al . (1998) . Comparison of disease in calves dosed orally with oak or commercial tannic acid .J Vet Diagn Invest ; 10 : 263.