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Effect Of Jew's Stone Alone Or In Herbal Formulations On The Renal Dysfunction

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ABSTRACT

Jew's stone is useful for renal health as it expels kidney's stones. As reported in folk medicine a small amount of Jew's stone was claimed to be useful for curing of the urinary bladder stones which requires for scientific confirmation. Herbal formulae of Burdock, Ginkgo, Juniper, Corn Silk, Rosemary, Nettle, Fennel, Thuja and Sweet Majorana were studied in present work on renopathic rats as possible enhancement of Jew's Stone action.

Twenty-four adult male albino rats, Sprague – Dawley strain, weighting (150 ± 10 g) were used and fed on diets containing Jew's stone diet with and without the herbal collections for 28 days. The rats sacrificed and serum analyzed.

The results arrived to be summarized as follows:

Feeding on basal diet contained Jew's stone with and without herbal collections raised the BWG and FER. Inflicting with renopathy raised the internal organ weight while the reverse indicated on feeding with Jew's stone with and without herbal collections. Due to renopathy, rat's serum glucose level was raised, but when feeding on basal diet contained Jew's stone with and without herbal collections serum glucose decreased. Treatment with Jew's stone + herbal collection 2 in group 5 (Nettle, Juniper & corn silk) recorded the highest decrement. Gentamicine injection increased total Cholesterol, T.G, LDL & VLDL, but decreased the serum HDL.

The best serum HDL was observed in group 5 which fed on Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk) when compared with group 2 (control +ve). Maximum improvement of serum creatinine, urea & uric acid was found in group 5 Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk). Due to nephritis rats urine Na & K were decreased, while were increased in serum. Nevertheless

feeding on diets contained Jew's stone with and without herbal collections reversed the changes due to renopathy.

Rats fed on Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk) in group 5 indicated the best treatment for correcting urine Na & K levels.

Rats fed on Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk) in group 5 indicated the best treatment for correcting serum Na & K levels.

Due to nephritis creatinine clearance were decreased, while maximum improvement of creatinine clearance was found in group 5 Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk). Inflecting with renopathy raised the activities of serum AST & ALT while feeding Jew's stone with and without herbal collections reduced these levels. The best treatment to correct the levels of AST & ALT enzymes was observed in group V which fed on Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk).

Due to nephritis serum protein & albumin were decreased, while the increase was recorded in serum globulin. Nevertheless feeding on diets contained s with and without herbal collections reversed the change due to renopathy. The maximum improvement of serum total protein & albumin were found in group V which fed on Jew's stone + herbal collection 2 (Nettle, Juniper & corn silk).

INTRODUCTION

Herbal medicines are also referred to as herbal remedies, herbal products, and also described as 'phytotherapy'. According to the World Health Organization, 80% of the world's population used plant-based remedies as their primary from healthcare. Herbal medicines can only help to maintain health as part of a lifestyle that includes a balanced diet, appropriate exercise, and positive and relaxed attitude to life and its everyday stresses (Song *et al.*, 2010).

Jew's stone is useful for renal health as it expels kidney's stones as reported in the traditional medicine. A small amount of Jew's stone was claimed to be useful for curing of the urinary bladder stones (Ibn-Sina, 1935).

Arctium lappa, commonly known as burdock, is being recommended as a healthy and nutritive food in Chinese societies. In the root, the active ingredients have been found to "detoxify" blood in terms of Traditional Chinese Medicine (TCM) and promote blood circulation to the skin surface, improving the skin quality and curing skin diseases like eczema. Antioxidants compounds have also been found in the root and it have hypoglycemic and diuretic properties (Chan *et al.*, 2011).

Ginkgo extracts based on clinical trials have shown the efficiency in the treatment of patient with dementia, tinnitus and peripheral circulatory disorders (DeFeudis , 2008).

Juniperus was studied the diuretic activity of juniper has been attributed to the volatile oil component, terpinen-4-ol, which is reported to increase the glomerular filtration rate (Gruenwald, 2000).

Corn Silk is occasionally used in herbal medicine for kidney and bladder disorders, arthritis and rheumatism (Velazquez *et al.*, 2005).

Rosemary has sedative, diuretic, stomachic, antispasmodic and antiseptic properties. It is especially beneficial for fatigue and neuralgia. Very strong doses, however, are poisonous (Parnham and Kesselring, 1995).

Nettle has been used medicinally probably since the Middle Ages, particularly for menstrual problems. It remains a popular remedy for bladder disorders (Shibuya , 1996).

Fennel was investigated the main constituents of which are an essential oil (up to 6 %) with anethole and fenchone plus fatty oil, proteins, sugars and mucilage. These substances give fennel antispasmodic, carminative, stomachic, aromatic and diuretic properties (Raal *et al.*, 2012).

Thuja used by herbalist's arbor vitae as a remedy for bronchitis, rheumatism and uterine cancer. It has also been used to treat the side effect of the smallpox vaccination (Grieve and Leyel, 1992).

Origanum majorana (Sweet marjoram) constituents include 1-2 % of an essential oil with a spicy fragrance containing terpinines and terpineol, plus tannins, bitter compounds, carotenes and vitamin C. It is used mainly for various gastrointestinal disorders and to aid digestion. It is also an ingredient of ointments and bath preparation used to alleviate rheumatism (Ramadan *et al.*, 2012).

MATERIALS AND METHODS

This work was carried out in the Animal House of the Research Institute of Ophthalmology, Giza, Egypt.

Materials:

The Jew's stone & dried herbs were obtained from the special shop and added to diet. Twenty four (24) adult male albino rats, Sprague – Dawley strain, weighting (150 ± 10g) were used, which were obtained from Research Institute of Ophthalmology, Giza, Egypt.

Methods:

Impaired Kidney could be induced in normal healthy male albino rats by intra-peritoneal injection of gentamicin (aminoglycosides antibiotics) obtained by Memphis Co. from Pharm.Chem.Ind.Cairo.A.R.E.at 10 mg/kg/day for 10 days in which the nephrotoxicity, one of the adverse reaction of gentamicin took place (Farombi and Ekor 2006).

All rats were fed on basal diet for seven consecutive days as adaptation period. Rat's weight for all groups was nearly equal. All the groups of rats were housed in wire cages and fed on the experimental diet for 4 weeks according to the following:

Group (1): This group was fed on basal diet only as a negative control (healthy rats) (C-ve) (n=4).

Group (2): This nephritic group was fed on basal diet only as a positive control (rats with impaired kidney by gentamicin) (C+ve) (n=4).

Group (3): This nephritic group was fed on basal diet containing 3% Jew's stone

Group (4): This nephritic group was fed on basal diet containing +1.5% Jew's stone+ 1.5%herbal collection1 (Fennel, sweet Marjoram and Rosemary 1:1:1).

Group (5): This nephritic group was fed on basal diet containing 1.5% Jew's stone+ 1.5%herbal collection 2(Nettle, Juniper and Corn silk1:1:1).

Group (6): This nephritic group was fed on basal diet containing 1.5% Jew's stone+ 1.5%herbal collection 3 (Ginkgo, Thuja and Burdock1:1:1).

During the experimental period (28 days), the diet consumed, recorded every day, and body weight recorded every week. The body weight gain (BWG%), feed efficiency ratio (FER), and also organ weights determined according to (Chapman *et al.*, 1959).

Analysis included the following: serum glucose (Mike *et al.*, 2000), creatinine (Denise, 2007), urea in serum and uric acid (Mike *et al.*, 2000), (Na&K in serum and urine (Diana,Nicoll *et al.*, 2003), serum total cholesterol and Triglycerides (William *et al.*, 2004), , HDL-cholesterol Fnedewaid (1972) and Gordon and Amer (1977), VLDL&LDL – cholesterol LEE and Nieman (1996) atherogenic index (AI)Nakabayashi *et al.*,(1995),(AST)&(ALT) and total proteins (Diana,Nicoll *et al.*, 2003),. Also body weight gain (BWG%), feed efficiency ratio (FER)(Chapman *et al.*, 1959) and weight of internal organs. Histopathological investigation of kidney and liver was carried out (Price, 1991).

RESULTS AND DISCUSSION

A-Serum glucose:

Data in table (1) show the levels of random blood sugar(RBS) in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It is evident that renal disease increased the RBS (mg/dl). Meanwhile feeding on basal diet plus Jew's stone resulted in the reduction of RBS (mg/dl). Nevertheless herbal collections counteracted the effect of renopathy leading to decrease of RBS (mg/dl). It could be

noticed that the mean value of RBS (mg/dl) of control (+) group was higher than control (-) group, being 94.00 ± 5.29 & 76.00 ± 6.48 mg/dl, respectively, showing a significant difference with percent of decrease - 19.15% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best decrease of RBS (mg/dl).

According to Ahangarpour *et al.*, (2012) *Urtica dioica* extract, is decreasing serum glucose, which may be useful to improve type 2 diabetes mellitus. Moreover, Zhao *et al.*, (2012) suggested that corn silk decreased the animal's blood glucose (BG) level, and Guo *et al.*, (2009) reported that the action of corn silk extract on glycemic metabolism is not via increasing glycogen and inhibiting gluconeogenesis but through increasing insulin level as well as recovering the injured beta-cells. Orhan *et al.*, (2011) reported that the treatment of diabetic rats with *Juniperus oxycedrus* decreased the blood glucose levels in liver and kidney tissues. Ju *et al.*, (2008) suggested that the ethanolic extract of *Chinese juniperus* berries reduced the blood glucose levels of alloxan-induced diabetic rats.

Table (1): Random blood sugar (RBS) of nephritic rats as affected by feeding on Jew's stone diet with and without the herbal collections

Parameters	RBS (mg/dl)
Group 1 Control -ve	76.00 ± 6.48^d
Group 2 Control +ve	94.00 ± 5.29^a
Group 3 +3% Jew's Stone	80.75 ± 4.65^c
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)	86.75 ± 9.14^b
Group 5 (1.5% Jew's Stone+1.5%herbal collection2)	78.00 ± 4.55^c
Group 6 (1.5% Jew's Stone+1.5%herbal collection3)	79.75 ± 9.00^c

Data are presented as means \pm SD..

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Ginkgo, Thuja, Burdock.

B-Kidney damage indicators

a-Serum creatinine, urea and uric acid:

Data in table (2) show the levels of creatinine, urea and uric acid in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It is evident that renal disease increased the urea, creatinine and uric acid (mg/dl) in serum. Meanwhile, feeding on basal diet plus Jew's stone resulted in the reduction of urea, creatinine and uric acid (mg/dl). Nevertheless herbal collections counteracted the effect of renopathy leading to decrease of urea, creatinine and uric acid (mg/dl) reduction.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) was the best treatment for urea, creatinine and uric acid (mg/dl).

According to Salem, Zainab (2008) with acute renal failure the urea in serum in control (-) rats was by 20.7% less compared to control (+) group, which was only 2.71% more than the control (-) group. In present work, Jew's stone showed 48.04% urea reduction in serum compared to control (+) group, while urea of Jew's Stone with herbal collection 2 diet did not significantly differ compared to that of control (-) rats. Therefore, both Jew's stone and herbal collections 1, 2 &3 in particular that of the herbal formulation 2 are of great importance as therapy of renal failure. According to Yarnell (2001), renopathy caused the increase of serum creatinine while feeding with herbs (Nettle and Juniper) reversed such a change.

Table (2): Serum creatinine, urea and uric acid of renopathic rats as affected by renopathy and feeding on Jew's Stone without and with herbal collections

Groups	Parameters	Creatinine (mg/dl)	Urea(mg/dl)	Uricacid(mg/dl)
Group 1 Control -ve		0.56±0.15 ^d	24.50±4.20 ^d	3.08±0.54 ^d
Group 2 Control +ve		1.64±0.19 ^a	70.25±7.37 ^a	6.23±0.25 ^a
Group 3+3% Jew's Stone		0.88±0.13 ^b	36.50±10.02 ^b	4.55±0.45 ^b
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)		0.80±0.22 ^b	29.25±6.58 ^c	4.60±0.50 ^b
Group 5 (1.5% Jew's Stone+1.5%herbal collection2)		0.68±0.10 ^c	26.00±8.22 ^d	3.98±0.93 ^c
Group 6 (1.5% Jew's Stone+1.5%herbal collection3)		0.86±0.13 ^b	37.25±5.50 ^b	4.55±0.55 ^b

Data are presented as means±SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Gingko, Thuja, Burdock.

b- Serum and urine electrolytes (Na & K) and creatinine clearance of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections

Data in table (3) show the Na & K and creatinine clearance of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It could be observed that due to inflicting rats with nephropathy Na & K increased in serum while reduced in urine indicating disorder of kidney function (Sheir, Marwa 2009).

It is evident that renal disease increased the show sodium and potassium in serum (m.mol/L). Meanwhile feeding on basal diet plus Jew's stone resulted in the reduction of sodium and potassium in serum (m.mol/L). Nevertheless herbal collections counteracted the effect of renopathy leading to decrease of sodium and potassium in serum (m.mol/L).

It is evident that Jew's stone diet resulted in some more decrease of serum, and the value did not differ significantly with that recorded for healthy rats. In particular Jew's stone diet plus the herbal collection 2 (Nettle, Juniper & corn silk) revealed a significant decreased sodium and potassium in serum as compared to both plain Jew's stone diet and also value recorded for healthy rats.

It is obvious that renal disease reduced the sodium & potassium in urine (m.mol/L). Meanwhile. feeding on basal diet plus Jew's stone resulted in increase of sodium and potassium in urine (m.mol/L). Nevertheless, herbal collections counteracted the effect of renopathy leading to increase of sodium and potassium in in urine (m.mol/L). It could be noticed that the mean value of sodium in urine(m.mol/L) of control (+) group was lower than control (-) group, it were being 112.50 ± 23.67 & 174.50 ± 6.35 (m.mol/L), respectively, showing a significant difference with percent of increase +55.11% of control (-) group as compared to control (+) group, and the mean value of potassium in urine(m.mol/L) of control (+) group was lower than control (-) group, it was being 102.25 ± 8.96 & 139.15 ± 12.53 (m.mol/L).

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best increase of sodium and potassium in in urine (m.mol/L).

According to Yarnell (2001) renopathy caused the decrease of sodium and potassium in urine (m.mol/L). While feeding with fennel and

Juniperus caused the increase of excretion of urine from the body as well as the amount of sodium in urine.

Dzharullaeva (2009) found that the main biologically active substances are flavonoids 1.61% in *Juniperus oxycedrus* and possess the diuretic effect. Tumen *et al.*, (2012) suggested that *Juniperus sp.* are mainly used as diuretic in Turkish folk medicine.

It is evident that renal disease reduced the creatinine clearance. Meanwhile feeding on basal diet plus Jew's stone resulted in increase of creatinine clearance. Nevertheless, herbal collections counteracted the effect of renopathy leading to increase of creatinine clearance. It could be noticed that the mean value of creatinine clearance of control (+) group was lower than control (-) group, it was being 0.83 ± 0.06 & 4.96 ± 0.99 mg/min, respectively, showing a significant difference with percent of increase +497.59% of control (-) group as compared to control (+) group.

It seems that creatinine clearance is a good factor for evaluation the status of kidneys. This because due to renopathy the creatinine clearance was 6 times less than that of the healthy rats. With Jew's stone diet the creatinine clearance improved being one half that of the control (-) rats; in control (+) group, however, it was 0.2 times that of the healthy group.

Table (3): Serum and urine electrolytes (Na & K) and creatinine clearance of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections

Groups	Parameters		Serum (m.mol/L)		Urine(m.mol/L)		Creatinine clearance mg/min
	Na	K	Na	K	Na	K	
Group 1 Control -ve	139.00±2.45 ^c	3.78±0.28 ^b	174.50±6.35 ^a	139.15±12.53 ^d	174.50±6.35 ^a	139.15±12.53 ^d	4.96±0.98 ^a
Group 2 Control +ve	142.75±3.40 ^a	4.03±0.43 ^a	112.50±23.67 ^d	102.25±8.96 ^c	112.50±23.67 ^d	102.25±8.96 ^c	0.83±0.06 ^d
Group 3 +3% Jew's Stone	138.75±3.20 ^c	3.80±0.24 ^b	133.00±9.24 ^c	146.50±9.81 ^c	133.00±9.24 ^c	146.50±9.81 ^c	2.82±0.43 ^c
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)	138.25±2.63 ^c	3.83±0.41 ^b	131.00±6.93 ^c	142.00±2.31 ^c	131.00±6.93 ^c	142.00±2.31 ^c	3.29±0.98 ^b
Group 5 (1.5% Jew's Stone+1.5%herbal collection2)	137.75±2.22 ^d	3.53±0.10 ^c	159.00±42.72 ^b	155.50±22.52 ^a	159.00±42.72 ^b	155.50±22.52 ^a	4.44±0.61 ^a
Group 6 (1.5% Jew's Stone+1.5%herbal collection3)	140.25±1.71 ^b	3.83±0.22 ^b	135.50±12.12 ^c	153.00±26.56 ^a	135.50±12.12 ^c	153.00±26.56 ^a	2.73±0.69 ^c

Data are presented as means±SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Gingko, Thuja, Burdock.

C- Serum lipids profile:

Total cholesterol(T.C) , triglycerides (T.G), very low-density lipoprotein cholesterol (vLDL), high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL) and the atherogenic index (A.I) in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections:

Data in table (4) show the levels of T.C, T.G, vLDL, HDL, LDL and the atherogenic index in serum of renopathic rats as affected by renopathy and feeding on Jew's Stone without and with herbal collections.

It could be noticed that the mean value of total Cholesterol (mg/dl) of control (+) group was higher than control (-) group, it was being 259.50 ± 18.16 & 163.00 ± 5.72 mg/dl, respectively, showing a significant difference with percent of decrease -37.19% in control (-) group as compared to control (+) group.

In particular, group 3 (Jew's stone diet) and group 5 (Jew's stone plus herbal Collection 2 Nettle, Juniper & corn silk) showed the best decrease of total Cholesterol (mg/dl).

According to Nassiri *et al.*, (2009) *Urtica dioica* extract has hypocholesterolemic effects in the animal model. And Zhao *et al.*, (2012) suggested that corn silk reduced the serum lipid level including total cholesterol (TC) and total triglyceride (TG) after the feeding trial.

It could be noticed that the mean value of Triglycerides (mg/dl) of control (+) group was higher than control (-) group, it was being 125.75 ± 4.99 & 74.50 ± 7.33 mg/dl respectively, showing a significant difference with percent of decrease -40.76% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best decrease of Triglycerides (mg/dl).

According to Nassiri *et al.*, (2009) *Urtica dioica* extract has reduced Triglycerides in the animal model.

Moreover, Zhao *et al.*, (2012) suggested that corn silk reduced the serum lipid level including total cholesterol (TC) and triglycerides (TG).

El-Ghonemy, Eman (2011) found that both potato and cantaloupe peels reduced the Triglycerides in serum of nephritic rats due to antioxidants and polyphenol contents.

It could be noticed that the mean value of VLDL (mg/dl) of control (+) group was higher than control (-) group, it was being 25.15 ± 1.00 & 14.90 ± 1.47 mg/dl, respectively, showing a significant difference with percent of decrease -40.76% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the maximum decrease of VLDL (mg/dl).

El-Ghonemy, Eman (2011) found that while VLDL increased with renopathy, cantaloupe or specially potato peels diets lowered this value; in particular the decrease was significantly in the last case. As mentioned before, such reduction may be due to the effect of polyphenols and antioxidants of vegetable and fruit peels.

It could be noticed that Jew's stone diet raised remarkably what so called the "good cholesterol" (Whitney, Eleanor *et al.*, 1991) appreciably, even HDL of this group (49.00 ± 8.76 mg/dl) was higher in comparison with that of the control (-) rats (42.75 ± 6.08 mg/dl). Maximum improvement of the lipids profile represented by considerable decrease of HDL which even much greater than that of control (-) rats, and was also higher than that of recorded for plain Jew's stone group.

El-Ghonemy, Eman (2011) reported that HDL was significantly increased in serum of nephritic rats consumed diet with, cantaloupe or potato peels, containing antioxidants and polyphenols.

According to Nassiri *et al.*, (2009) indicated that *Urtica dioica* extract has reduced of LDL in the animal model.

It is clear that plain Jew's stone diet reduced appreciably the so called "bad cholesterol" (Whitney, Eleanor *et al.*, 1991), but still its level is higher than that of the control (-) rats. Selected best group (Jew's Stone + herbal collection2) showed LDL level which was only 1.10 times compared to that of the healthy rats. This indicated the value of adding the herbal collections with Jew's stone to enhance the reduction of LDL.

It could be noticed that the mean value of A.I ratio of control (+) group was higher than control (-) group, it was being 6.57 ± 1.57 & 3.88 ± 0.65 , respectively, showing a significant difference with percent of decrease -40.94% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best decrease of A.I.

According to Ju *et al.*, (2008) the aqueous extract of *Chinese Juniperus* had a potential hypolipidemic effect. Kim *et al.*, (2008) reported that *Juniperus chinensis* hot water extract reduced blood lipids levels of albino rats. Orhan *et al.*, (2011) found that the

treatment of diabetic rats with *Juniperus oxycedrus* decreased both the levels of lipid peroxidation in liver and kidney tissues.

Table (4): Total cholesterol Total cholesterol(T.C) , Triglycerides (T.G), very low-density lipoprotein cholesterol (vLDL), high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL) and the atherogenic index (A.I) in serum of renopathic rats as affected by renopathy and feeding on Jew's Stone without and with herbal collections

Groups Parameters	TC(mg/dl)	TG(mg/dl)	vLDL(mg/dl)	HDL(mg/dl)	LDL(mg/dl)	AI ratio
Group 1Control -ve	163.00±5.72 ^e	74.50±7.33 ^e	14.90±1.47 ^e	42.75±6.08 ^d	105.35±10.19 ^e	3.88±0.65 ^c
Group 2Control +ve	259.50±18.16 ^a	125.75±4.99 ^a	25.15±1.00 ^a	40.75±7.50 ^e	193.60±24.01 ^a	6.57±1.57 ^a
Group 3+3% Jew's Stone	197.50±9.95 ^c	108.50±6.56 ^c	21.70±1.31 ^c	49.00±8.76 ^b	126.80±6.92 ^c	3.91±0.60 ^b
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)	203.75±7.97 ^b	116.75±4.79 ^b	23.35±0.96 ^b	46.50±5.80 ^c	133.90±5.39 ^c	4.00±0.52 ^b
Group 5 (1.5% Jew's Stone+1.5%herbalcollection2)	187.75±10.81 ^d	99.25±10.21 ^d	19.85±2.04 ^d	51.50±6.24 ^a	116.40±8.50 ^d	3.88±0.10 ^c
Group 6 (1.5% Jew's Stone+1.5%herbalcollection3)	199.50±8.58 ^c	107.25±8.22 ^c	21.45±1.64 ^c	51.50±3.11 ^a	126.55±4.65 ^c	4.28±0.38 ^b

Data are presented as means±SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Gingko, Thuja, Burdock.

D-Liver enzymes:

Data in table (5) show the levels of AST, ALT and AST/ALT Ratio in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It is evident that renal disease increased the show AST ,ALT (U/L) and AST/ALT Ratio. Meanwhile feeding on basal diet plus Jew's stone resulted in the reduction of show AST ,ALT(U/L)and AST/ALT Ratio. Nevertheless herbal collections counteracted the effect of renopathy leading to decrease of determined AST ,ALT (U/L) and AST/ALT Ratio. It could be noticed that the mean value of show AST (U/L)of control (+) group was higher than control (-) group, it was being 96.50±4.43 & 44.00±2.94U/L, respectively, indicating a significant difference with percent of decrease -54.40% in control (-) group as compared to control (+) group, while it could be noticed that the mean value of show AIT(U/L) of control (+) group was higher than control (-)

group, it was being 31.25 ± 2.63 & 18.00 ± 1.83 (U/L), respectively, indicating a significant difference with percent of decrease -42.40% in control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best decrease for AST and ALT (U/L), showing appreciable reduction of AST/ALT Ratio.

It is evident that AST/ALT ratio of control (+) group was 1.27 that of the control (-) rats. Jew's stone diet reduced the ratio which was 0.85 that of the control (+) rats. Herbal collection 2 & 3 decreased more the ratio which increase of collection 2 was 0.92 that of Jew's stone diet and 0.78 that of control (+) group being 0.87 & 0.74 for collection 3, respectively.

According to Ozbek et al., (2003) *Foeniculum vulgare* (fennel) decreased levels of serum aspartate aminotransferase (AST) & alanine aminotransferase (ALT).

According to El-Gamal, Asmaa (2012) ALT increased markedly due to renopathy, while decreased considerably when renopathic rats fed on pumpkin pulp, peels, seeds or the mixture of all.

Table (5): AST, ALT and AST/ALT in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections

Parameters \ Groups	AST(U/L)	ALT(U/L)	AST/ALT ratio
Group 1 Control -ve	44.00 ± 2.94^d	18.00 ± 1.83^d	2.44 ± 1.60^c
Group 2 Control +ve	96.50 ± 4.43^a	31.25 ± 2.63^a	3.09 ± 1.68^a
Group 3 +3% Jew's Stone	63.75 ± 4.27^b	24.25 ± 4.65^c	2.63 ± 1.37^b
Group 4 (1.5% Jew's Stone + 1.5% herbal collection 1)	65.25 ± 4.57^b	24.50 ± 3.11^c	2.66 ± 1.47^b
Group 5 (1.5% Jew's Stone + 1.5% herbal collection 2)	57.50 ± 5.97^c	23.75 ± 2.63^c	2.42 ± 2.27^c
Group 6 (1.5% Jew's Stone + 1.5% herbal collection 3)	62.25 ± 4.79^b	27.25 ± 5.38^b	2.28 ± 0.89^d

Data are presented as means \pm SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Ginkgo, Thuja, Burdock.

E-Serum protein fractions

Data in table (6) show the levels of total protein (T.P), Albumin (Alb), Globulin (Glb) and Albumin/Globulin (Alb/Glb) ratio in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It could be noticed that the mean value of T.P. (g/dl) of control (+) group was lower than control (-) group, it was being 5.55 ± 0.21 & 6.25 ± 0.24 g/dl, respectively, showing a significant difference with percent of increase +12.61% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus Collection 1 (Sweet Marjoram, Fennel & Rosemary) and Jew's Stone plus Collection 2 (Nettle, Juniper & corn silk) showed the best increase of T.P. (g/dl).

It could be noticed that the mean value of Albumin (g/dl) of control (+) group was lower than control (-) group, it was being 2.42 ± 0.15 & 3.83 ± 0.15 (g/dl) respectively, showing a significant difference with percent of increase +58.26% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best increase of Albumin (g/dl).

El-Moslemany, Amira (2012) found that acute renal failure resulted in the decline of Albumin to a level, it was being 0.22 only that of the healthy rats. On the other side, herbal formulations decoction raised Albumin, which was sometimes higher numerically than that of the control (-) rats. In present work, selected best treatment (Jew's Stone diet plus herbal collection 2) raised the Albumin, to a level was numerically higher than that of the healthy rats, showing nonsignificant difference as compared to that of the control (-) rats.

It could be noticed that the mean value of Globulin (g/dl) of control (+) group was higher than control (-) group, it was being 3.13 ± 0.28 & 2.43 ± 0.25 (g/dl), respectively, indicating significant difference with percent of decrease -22.36% of control (-) group as compared to control (+) group.

In particular, Jew's stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best decrease of serum Globulin (g/dl).

It is evident that renal disease decreased the show (Alb/Glb) ratio. Meanwhile, feeding on basal diet plus Jew's stone resulted in the increase of show (Alb/Glb) ratio. Nevertheless, herbal collections counteracted the effect of renopathy leading to increase of show (Alb/Glb) ratio. It could be noticed that the mean value of show (Alb/Glb)

ratio of control (+) group was lower than control (-) group, it was being 0.77 ± 0.54 & 1.56 ± 0.60 respectively, indicating a significant difference with per cent of increase +102.60% of control (-) group as compared to control (+) group.

In particular, Jew's Stone plus herbal Collection 2 (Nettle, Juniper & corn silk) showed the best increase of serum (Alb/Glb) ratio.

It is clear (Tables 1-6) that combining of all herbal collections revealed no synergistic action.

Table (6): Total protein (T.P), Albumin (Alb), Globulin (Glb) and Albumin/Globulin (Alb/Glb) ratio in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections

Parameters \ Groups	Total protien (T.P)(g/dl)	Albumin (Alb.) (g/dl)	Globulin (Glb.) (g/dl)	(Alb/Glb) ratio
Group 1 Control -ve	6.25 ± 0.24^a	3.83 ± 0.15^a	2.43 ± 0.25^d	1.56 ± 0.60^a
Group 2 Control +ve	5.55 ± 0.21^c	2.42 ± 0.15^c	3.13 ± 0.28^a	0.77 ± 0.54^d
Group 3+3% Jew's Stone	6.28 ± 0.31^a	3.25 ± 0.17^b	3.03 ± 0.21^a	1.07 ± 0.48^c
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)	6.28 ± 0.22^a	3.40 ± 0.22^b	2.88 ± 0.10^b	1.20 ± 0.40^b
Group 5 (1.5% Jew's Stone+1.5%herbal collection2)	6.28 ± 0.17^a	3.85 ± 0.19^a	2.43 ± 0.17^d	1.58 ± 1.00^a
Group 6 (1.5% Jew's Stone+1.5%herbal collection3)	5.98 ± 0.13^b	3.33 ± 0.19^b	2.65 ± 0.17^c	1.25 ± 1.00^b

Data are presented as means±SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Gingko, Thuja, Burdock.

F- Body weight gain % (BWG%)and feed efficiency ratio (FER):

Data in table (7) show the levels of (BWG%) &(FER) in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections.

It is evident that renal disease decreased the BWG%. Also, feeding on basal diet plus Jew's stone resulted in the decline of BWG%. Nevertheless, herbal collections (1&2) counteracted the effect of renopathy leading to significant increase of BWG%.

In particular, Jew's stone plus Collection 2 (Nettle, Juniper & Corn silk) showed the higher increase of BWG%.

Ali, Amal (2011) found that nephritic rats fed on diet containing a mixture of plants (parsley) and herbs (Khella seed and Halfa barr) showed increases of the BWG% but not to the original level of healthy rats.

All renopathic rats fed on various experimental diets showed a significant increase in mean values of FER as compared to control (+) group (Table 7). Rats fed on groups III, IV, V, VI showed nonsignificant differences between them showing the same effect on FER.

It is clear (Table 7) that FER of healthy group was 150% that of the renopathic rats. Kider, Abeer (2006) found that the FER of control (-) group was 90% higher than that of the nephritic rats. On the other hand, feeding diseased rats on brown algae diet raised the FER by 66.67% of control (+) group, respectively. In present work (Table 2) Jew's Stone diet raised FER by 50% that of the control (+) rats. This indicated the value of Jew's Stone diet as therapy for renal disease, and that traditional medicine still keeps its value nowadays.

Herbal collections, although raised significantly the BWG% of rats as compared to Jew's Stone diet (Table 7), they did not affect the FER

Again (Table 7), combining of herbal formulations did not synergistic action in concern to BWG% or FER as calculated for rats.

Table (7): BWG% & FER in serum of renopathic rats as affected by renopathy and feeding on Jew's stone without and with herbal collections

Parameters \ Groups	FER	BWG%
Group 1 Control -ve	0.05±0.02 ^a	12.30±4.62 ^a
Group 2 Control +ve	0.02±0.01 ^c	5.52±2.58 ^d
Group 3 +3% Jew's Stone	0.03±0.02 ^b	8.26±5.60 ^c
Group 4 (1.5% Jew's Stone+ 1.5%herbal collection 1)	0.03±0.01 ^b	8.53±3.66 ^b
Group 5 (1.5% Jew's Stone+1.5%herbal collection2)	0.03±0.03 ^b	8.98±1.78 ^b
Group 6 (1.5% Jew's Stone+1.5%herbal collection3)	0.03±0.02 ^b	8.10±3.91 ^c

Data are presented as means±SD.

Means with different letters (a, b, c and d) in the same column differ significantly at $p \leq 0.05$

Herbal collection (1): Fennel, Sweet Marjoram, Rosemary.

Herbal collection (2): Nettle, Juniper, Corn Silk.

Herbal collection (3): Ginkgo, Thuja, Burdock.

G-Histopathological results:

Investigation of kidney and liver sections (photos 1-8) indicated the improvement of the histological structure deteriorated due to nephritis.

a-Kidney

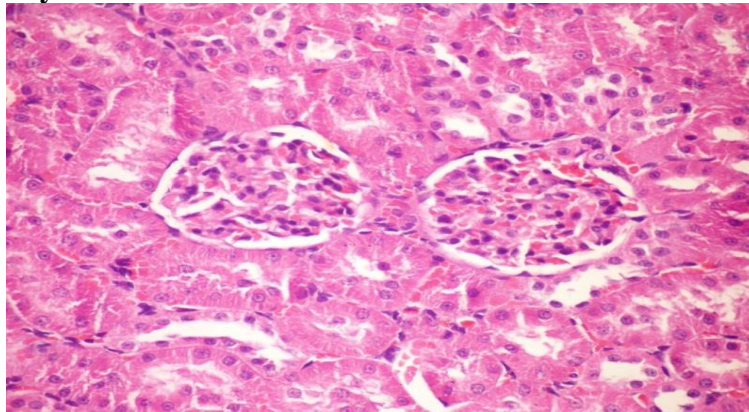


Photo (1): Kidney of rat from group 1(control -ve) showing normal histological structure of renal parenchyma (H and E *400)

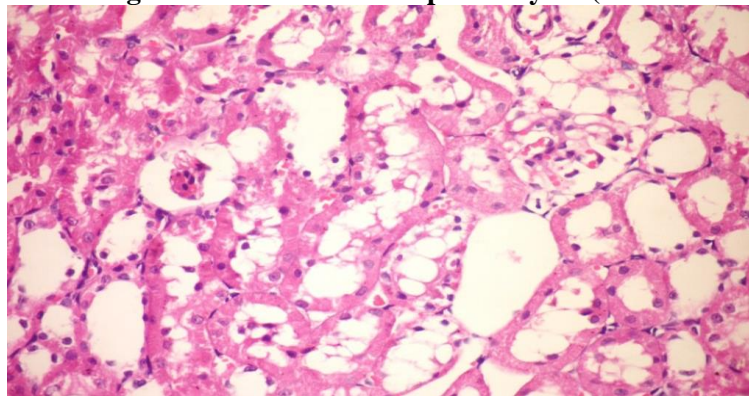


Photo (2): Kidney of rat from group 2 (control +ve) showing vacuolations of endothelial lining glomerular tuft as well as epithelial lining renal tubules together with atrophy of glomerular tuft (H and E * 400)

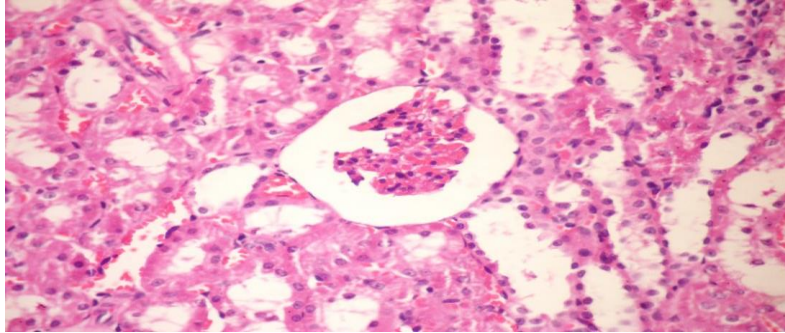


Photo (3): kidney of rat from group 3(Jew's Stone diet) showing congestion of glomerular tuft and distention of Bowman's space (H and E *400)

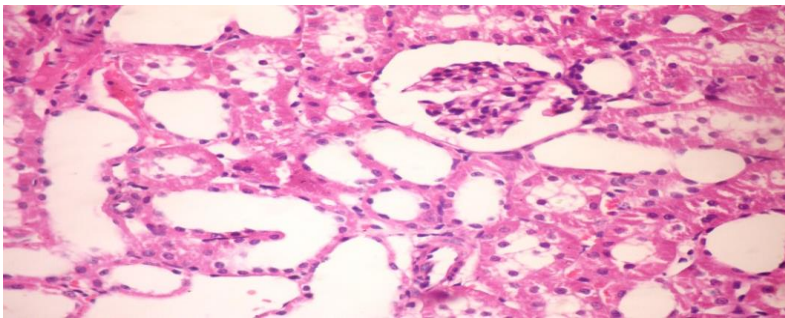


Photo (4): Kidney of rat from group 5(Jew's Stone diet+ herbal collection2) showing dilatation of Bowman's space and cystic dilatation of some renal tubules (H and D * 400)
b-Liver

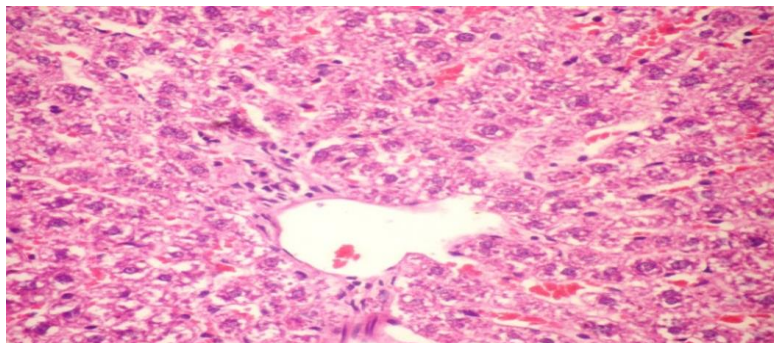


Photo (5): Liver of rat from group 1(control -ve) showing the normal histological structure of hepatic lobule (H and E * 400)

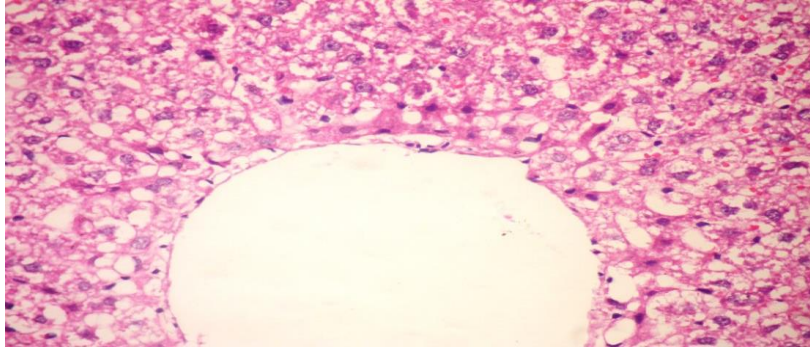


Photo (6): Liver of rat from group 2(control+ve) showing fatty degeneration of Centro lobular hepatocytes (H and E * 400)

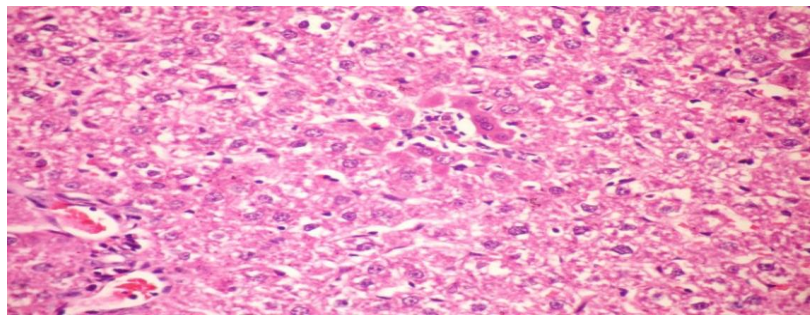


Photo (7): Liver of rat from group 3(Jew's Stone diet) showing cytoplasmic vacuolizations of hepatocytes and small focal hepatic necrosis (H and E * 400)

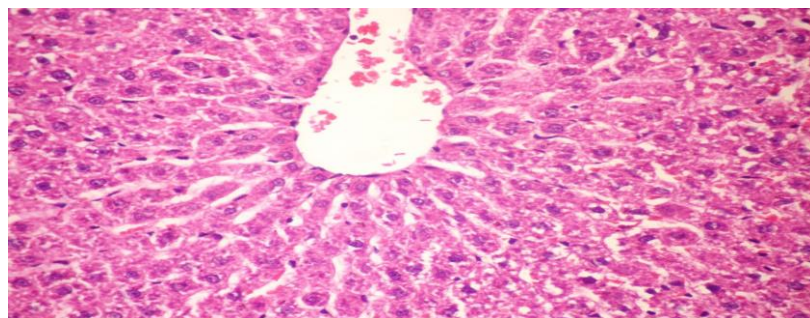


Photo (8): Liver of rat from group 5(Jew's Stone diet+ herbal collection 2)) showing no histological changes (H and E * 400)

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تأثير حجر اليهود على حده أو مع عده توليفات أعشاب على خلل وظيفة الكلى

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الملخص العربي:

يعتبر حجر اليهود مفيد لصحة الكلى كما جاء في الطب الشعبي , كميته بسيطه من حجر اليهود تكون مفيده في حاله حصوات الكلى ولكن هذا يحتاج الى تأكيد علمي وفي الدراسه الحاليه تمت اضافه توليفات من للاعشاب شمر، بردقوش، روزماري، قراص، عرعر، حرير الذره، جنكه، عصف و أرقطيون على الفئران المصابه بالالتهاب الكلوى كمعزز ممكن لتأثير حجر اليهود. وأجريت هذه الدراسه على عدد ٢٤ فأر أبيض بالغ يتراوح وزن كل منها 150 ± 10 جم وتمت اصابتهم بالتهاب كلوى ولعلاج الفئران تم تغذيتهم على وجبه غذائيه أساسيه تحتوى على حجر اليهود بالاضافه الى توليفات من الاعشاب السابقه لمدة ٢٨ يوم ثم بعد انتهاء المده المقرر تم الحصول على السيرم وتحليله.

ويمكن تلخيص النتائج فيما يلى:- التغذية على الوجبه الاساسيه بالاضافه الى حجر اليهود بدون أومع مجموعات عشبيه رفع معدل اكتساب الوزن ومعدل الاستفاده من الغذاء. ازدادت بدرجه معنويه مع الالتهاب الكلوى الحاد وزن الاعضاء الداخليه في حين أن العكس مبين على التغذية مع حجر اليهود بدون أومع مجموعات عشبيه . نظرا لالتهاب الكلوى الحاد ، زيادة مستوى الجلوكوز في مصل الدم في الفئران، ولكن عندما تتغذى على نظام غذائي الاساسى بالاضافه الى حجر اليهود بدون أو مع مجموعات عشبيه انخفاض الجلوكوز في الدم. سجلت المعامله مع حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) في المجموعه الخامسه أعلى انخفاض. أدى الحقن بالجنتاميسين الى زيادة الكولسترول الكلى، TG، LDL و VLDL، ولكن انخفاض HDL في السيرم. ظهرت الفئران فى مجموعه ٥ التى تغذت على حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) أفضل علاج لخفض TC، TG، VLDL LDL فى مصل الدم. وقد لوحظ أفضل مؤشر HDL فى السيرم فى المجموعه الخامسه التى تغذت على حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) بالمقارنه بالمجموعه المصابه.

سجلت المجموعه الخامسه التى تغذت على حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) الحد الأقصى لتحسين الكرياتينين فى مصل الدم و اليوريا وحمض البوليك .نظرا لحدوث الالتهاب الكلوى الحاد فى الفئران أدى الى انخفاض نسبه الصوديوم والبوتاسيوم فى البول، فى حين انه تم زيادة نسبه الصوديوم والبوتاسيوم فى البول عند التغذية على الوجبه الاساسيه بالاضافه الى حجر اليهود بدون أومع مجموعات عشبيه. سجلت المجموعه الخامسه للفئران المصابه بالفشل الكلوى الحاد التى تغذت على حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) أفضل مؤشر زيادة نسبه الصوديوم والبوتاسيوم فى البول.سجلت المجموعه الخامسه للفئران المصابه بالفشل الكلوى الحاد التى تغذت على حجر اليهود + المجموعات العشبيه ٢ (نبات القراص، والعرعر و حرير الذرة) أفضل مؤشر انخفاض نسبه الصوديوم والبوتاسيوم فى مصل الدم. الالتهاب الكلوى الحاد

في الفئران أدى الى انخفاض معدل استخلاص الكرياتينين، في حين انه تم زيادة معدل استخلاص الكرياتينين عند التغذية على الوجبة الاساسيه بالاضافه الى حجر اليهود بدون أومع مجموعات عشبية لوحظ انه نتيجة الاصابه بالالتهاب الكلوى الحاد للفئران أدى الى زيادة نسبة ALT , AST في مصل الدم بينما عند تغذية الفئران على الوجبة الاساسيه بالاضافه الى حجر اليهود بدون أومع مجموعات عشبية أدى الى تصحيح هذه المستويات. وقد سجلت المجموعه الخامسه للفئران المصابه بالفشل الكلوى الحاد التي تغذت على حجر اليهود + المجموعات العشبية ٢ (نبات القراص، والعرعرو حرير الذرة) أفضل مؤشر انخفاض في ALT , AST في مصل الدم.

ونظرا لحدوث الالتهاب الكلوى الحاد في الفئران أدى الى انخفاض نسبة البروتين الكلى والألبومين في مصل الدم، في حين انه تم زيادة نسبة البروتين الكلى والألبومين في مصل الدم عند التغذية على الوجبة الاساسيه بالاضافه الى حجر اليهود بدون أومع مجموعات عشبية. سجلت المجموعه الخامسه للفئران المصابه بالفشل الكلوى الحاد التي تغذت على حجر اليهود + المجموعات العشبية ٢ (نبات القراص، والعرعرو حرير الذرة) أفضل مؤشر ارتفاع في نسبة البروتين الكلى والألبومين في مصل الدم.