

Study The Effect Of (*Peganum Harmala*) Extract On The Infiltration Of The Inflammatory Cells Of Laboratory Animals (Pigeons) Experimental Study

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Summary :

The results of the study has shown that using different concentrations of the extract (*peganum harmala*) causes infiltration of the inflammatory cells on laboratory animals (Pigeons). Also when increases the concentration of the extract , the infiltration of the inflammatory cells will be increased and that concentration of 20% of the extract has showed some grossly sings on the Birds and then the calculation of the Lethal Dose (LD 50) resulted in the 20% concentration.

**دراسة تأثير مستخلص الحرمل على أرتشاح الخلايا الالتهابية في الحيوانات المختبرية
(الحمام) دراسته تجريبية.**

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الخلاصة :

أظهرت نتائج الدراسة أن استخدام تراكيز مختلفة من مستخلص نبات الحرمل ينتج عنه أرتشاح الخلايا الالتهابية في الحيوانات المختبرية (الحمام) كذلك أن زيادة تركيز المستخلص يزيد من أرتشاح الخلايا الالتهابية وكذلك وجد أن تركيز 20% من مستخلص الحرمل يُظهر بعض التغيرات العينية على الحيوانات المختبرية ومن ثم حساب (LD 50) التي ظهرت في تركيز 20%.

The AIM of the study:

Use of medicinal plants (*Alternative Medicine*) in the treatment of some diseases instead of drugs (*drugs with chemical compounds*) that have a detrimental effect in most cases.

Introduction:

Peganum Harmal is used as an alternative treatment for several inflammatory disease as its has a phytochemical compounds of Alkaloids , Flavonoids and Anthraquinones. So its can stimulates the infiltration of

inflammatory cells there by accelerate the healing process .

Harmal (peganum harmala) is a plant of the family Nitrariaceae native from Eastern Mediterranean region East to India its also known as Wild Rue Syrian Rue because of its resemblance to plants

of the Rue family.(1) It blossoms between June and August in the Northern hemisphere .

Traditional Uses In Turkey(*peganum harmala*) dried capsules from this plant are strong and hung in home or vehicles to protect against "The Evil Eye.(2)"

Medicinal Uses (*Peganum harmala*) is used as analgesic and anti-inflammatory agent.(3) In Yemen it was used to treat depression and it has been established in the laboratory that Hamline an active ingredient of (*Peganum harmala*) is a central nervous stimulant and a "Reversible Inhibitor of MAO-A'RIMA' " a category of anti-depressant. Smoke from seeds kills Algae Bacteria Intestinal parasite and molds.(4)

(*Peganum harmala*) has anti-bacterial activity including anti-bacterial activity against drug resistant bacteria. The root is applied to kill Lice and when burned the seeds kills Insects it's also inhibits production of (*Tribolium castaneum*) beetle.(2) It's also used as anti-helmintic (to expel parasitic worms).

Reportedly the ancient Greeks used powdered (*Peganum harmala*) seeds to get rid from Tapeworms and to treat recurrent fevers (*possibly Malaria*).(5) (*Peganum harmala*) is abortifacient and in large quantities it can reduce spermatogenesis and Male fertility in Rats.(3) It's fairly effective against Protozoa including Malaria there's evident that it maybe effective against drug-resistant Protozoa it is given in decoction for Laryngitis.(7) One of components found in (*Peganum harmala*) Vaccines (*peganum*) has been found to be safe and effective against (*Leishmania Donovan*) a protozoan parasite that can cause potentially Fatal Visceral Leishmaniasis.

Another Alkaloid Herminie found in (*Peganum harmala*) because of it's appreciable efficacy in destroying

intracellular parasites as well as non-hepatotoxicity and non-nephrotoxic nature 'Harman' in the vesicular form maybe considered for clinical applications in Humans.(8) (*Peganum harmala*) can minimize Escherichia coli in Poultry but long term feeding may induce side effects.(13) The Beta-Carboline Alkaloids present in the medicinal plants such as (*Peganum harmala*) and Eurycoma long folia have recently drawn attention due to their anti-tumor activities.(14) Further mechanistic studies that Beta-Carboline derivatives inhibits DNA synthesis.(15) (*Peganum harmala*) has anti-oxidant and anti-mutagenic properties .

(*Peganum harmala*) as well as Harman exhibits cytotoxicity with regards to HL60 and K562 Leukemia cell lines . Ground (*Peganum harmala*) seeds have been used occasionally to treat skin cancer and subcutaneously cancers traditionally in Morocco.(16) Seeds extracts also show effectiveness against various tumor cell lines both in Vitro and Vivo.(10)

Chemical Composition The commonly known Phytochemical compounds of (*Peganum harmala*) are Alkaloids Flavonoids and Anthraquinones. Total Alkaloids content varied between 2 and 5%. Harm line Harman Harmala Harmal and Tetrahydroharmine are identified and quantified as the main Beta-Carboline Alkaloids in (*Peganum harmala*) extracts.(13)(3) Results of the recent studies clearly indicated that Ethanolic extract of (*Peganum harmala*) significantly lowered Blood Glucose level in normal and diabetic Rats at variable dose levels (150 and 250mg/kg).(13) However it was reported that (*Peganum harmala*) extract has no Insulin secretion activity so the

possible Hypoglycemia activity is not related to pancreas and maybe it affects by using or/and absorption of Glucose.(14)

Material and Methods:

A total of 20 Pigeons of both Sexes (Male and Female) were purchased from a local supplier randomly divided into 5 Groups each contains 4 Birds housed in a Cage Outdoor and provided by Heating and Lightening



Diets:

Birds received Water and Diets ad-libitum according to the following:

- 1-First Group (Control) : given Wheat.
- 2-Second Group : given Wheat ,Sorghum , Fume and Hartman.
- 3-Third Group : given Fume and Sorghum.
- 4-Fourth Group : given Wheat and Hartman.
- 5-Fifth Group : given Wheat , Fume and Hartman.

Experimental Design

(*Peganum harmala*) extract were added to Water starting by 2 Drops in the First Day and increase by One Drop Day by Day until reach 10 Drops/Day and continue on that. In order to prepare the extract Seeds of (*Peganum harmala*) are cleaned and milled into Powder titerated by Olive Oil in different concentrations and as following:

- 1-First Group : control.
- 2-Second Group : given 10% concentration of extract.
- 3-Third Group : given 15% concentration of extract.
- 4-Fourth Group : given 20% concentration of extract.
- 5-Fifth Group : given 25% concentration of extract.

Results

Clinical Finding:

Effects of accelerated breathing and elevated pulse rate. Sever colonic muscular spasms. Anorexia , Diarrhea , Dyspnea usually with Nervous syndromes are dominant , First sign is Excitability followed by Muscular Tremors and Stiffness. Restlessness , Unthriftiness , and Weakness . These appears in the Forth group . The LD50 is found in the Forth group of 20% concentration of extract.

Post Mortum :

No distinctive lesions is observed Rapid Rigor Mortis , Heart , Liver , Pulmonary , Renal , GIT System are congested with Sub capsular Hemorrhage observed in Liver.



First Group (*control*) : no nervous symptoms or clinical sings



Second Group : Animals are Normal without any obvious clinical signs.



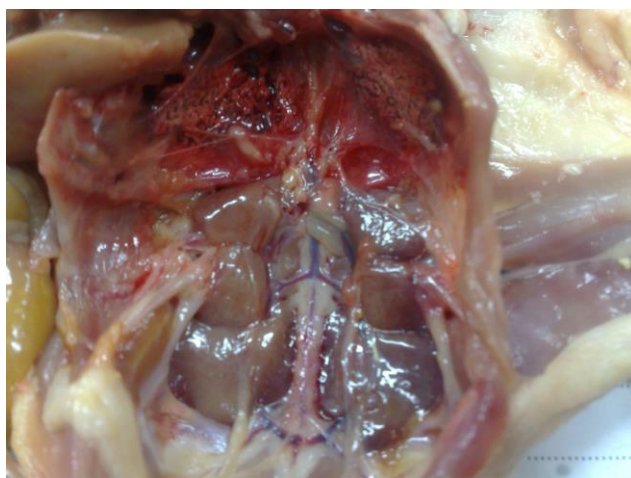
Third Group : no abnormal signs except their activity
Because when (*peganum harmala*) is given in certain concentration Causes activity
of central nervous system along with Muscular system.



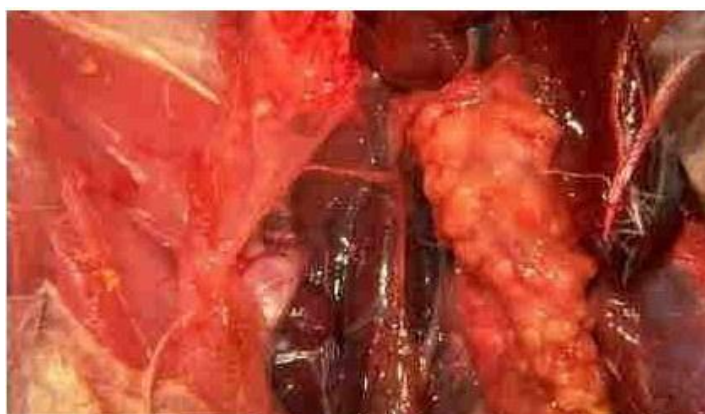
Fourth Group : several signs are seen in the concentration of 20% (*Peganum Harmala*).



Fourth Group : Intestinal congestion.



Group : Thoracic Cavity congestion. Fourth



Fourth Group : congestion of Liver.

Labrotary Diagnosis:
Histology:

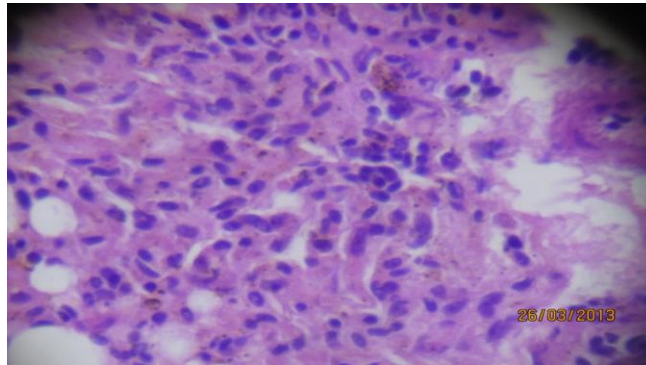


Figure (1) Liver , Infiltration of Mononuclear Cells (Kuffer Cells) in peripheral area.

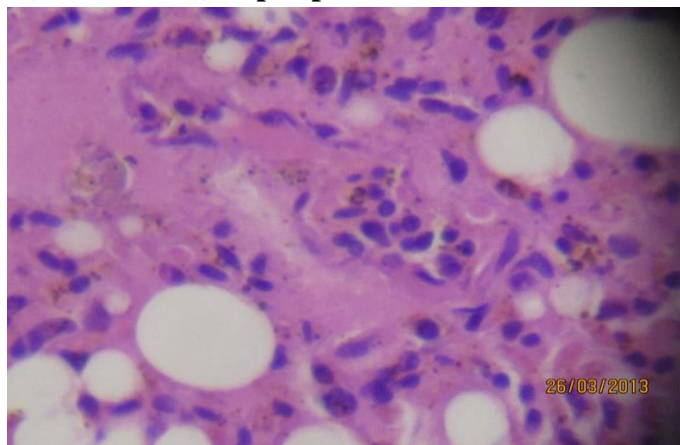


Figure (2) Lung , interstitial thickening between Alveoli and there is infiltration of Alveoli Macrophage.

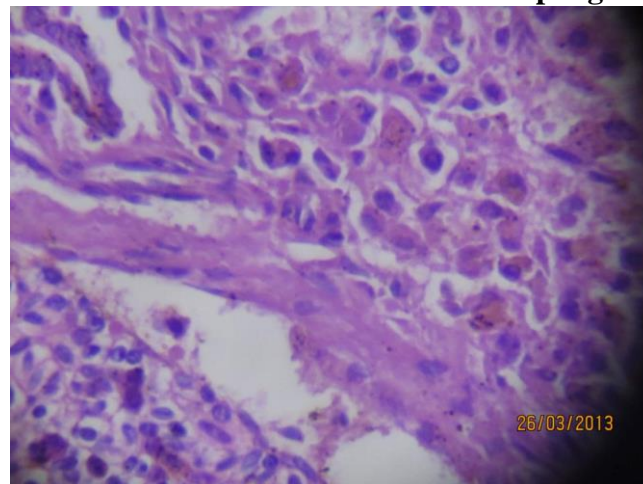
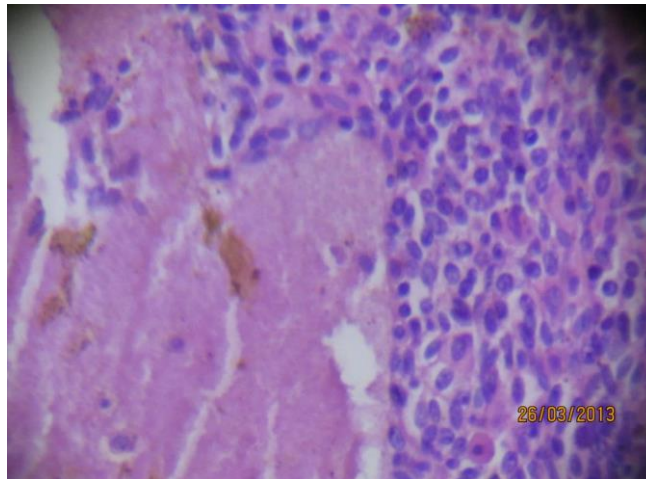
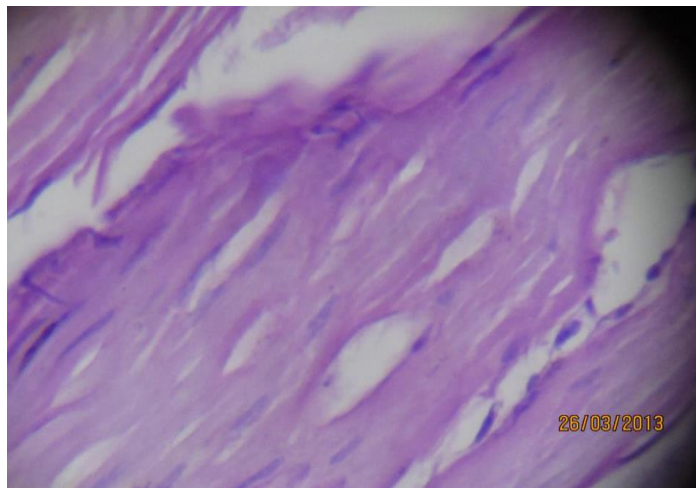


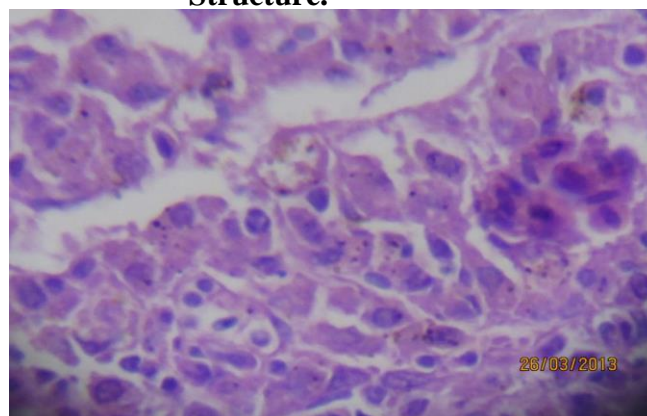
Figure (3) Liver , infiltration in the per portal area with Infiltration of Kuffer cells and aggregation of Amyloid Between Hepatocytes.



**Figure (4) Liver , in the per portal area there is infiltration
Of infiltration inflammatory cells and protein**



**Figure (6) Gizzard , Stratified Muscle with normal
Structure.**



**Figure (7) Kidney , infiltration of Mononuclear cells
(Messengeal cells) in the Glomerular Tuff in the Cortex.**

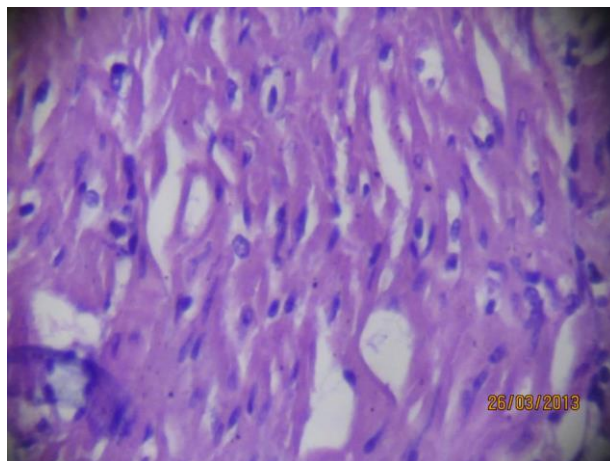


Figure (8) Heart , normal cardiac (striated) muscle.

Discussion:

The study showed the following:
Group I (control): given only water free of Rue extract.

Group B: given a dose of Rue extract a concentration of 10% was observed vitality and activity of birds, and these results were consistent with the researchers (14).

Group III: given a dose of Rue extract a concentration of 15% and also noted the vitality and activity of birds and these results were consistent with the researchers (6).

The fourth group: they were given a dose of extract Rue concentration of 20% has led to the death of 50% of the animals with the appearance of neurological symptoms and convulsions muscle on animals and this DVD that increasing the concentration of Rue leads to the appearance of neurological symptoms and muscle because it affects directly

on the central nervous system as well as the musculoskeletal system of animals and the results were identical to the researchers (4) (7).

Group E: given a dose of Rue extract at a concentration of 25% of Rue and extract these group gave mortality more than 90% was observed idle on animals with loss of appetite, neurological symptoms and death of most of them and these results were consistent with the researchers (10).

Conclusion :

The experimental study has relieved that using of alternative medicine by giving the Pigeons the extract of Peganum harmala as a treatment for several inflammatory diseases helps in stimulation and infiltration of inflammatory cells

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