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ANTI UROLITHIATIC ACTIVITY *OF TAMARINDS INDICA* SEED EXTRACT IN ALBINO RATS

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ABSTRACT

The aim of the present study is to evaluate acute toxicity and anti urolithic activity of aqueous extract of *Tamirindus Indica* seeds. the plant extract clearly exibit anti urolithiatic effect against Ammonium chloride and Ethylen Glycol induced urolithiasis in Albino rats. The study results also indicates dose dependent anti urolithiatic activity *of Tamarinds Indica* Seed extract.

Key Words: *Tamirindus Indica*, anti urolithiatic activity, seed extract

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INTRODUCTION

Medicinal plants have played an essential role in the development of human culture. Medicinal plants are resources of traditional medicines and many of the modern medicines are produced indirectly from plants.. (Saleh Hosseinzadeh1et.al) Although modern medicine may exist side-by-side with such traditional practice, herbal medicines have often maintained their popularity for historical and cultural reasons . The plant-derived substances have a long history of better patient tolerance, clinical use and good cmpliance. Till date nearly 35,000-70,000 plant species have been screened for Medicinal use (1). Thousands of years and in many parts of the world. In rural areas of the developing countries, they continue to be used as the primary source of medicine .About 80% of the people in developing countries use traditional medicines for their health care. The natural products derived from

With respect to diseases caused by microorganisms, the increasing resistance in many common pathogens to currently used therapeutic agents, such as antibiotics and antiviral agents, has led to renewed interest in the discovery of novel anti-infective compounds. As there are approximately 500 000 plant species occurring worldwide, of which only 1% has been phytochemically investigated, there is great potential for discovering novel bioactive compounds. Herbs have remained useful not only as remedy for different diseases that affect humans and animals, but also as good starting points for the discovery of bioactive molecules for drug development. The scientific exploitation of herbs used ethnomedicinally for pain relief, wound healing and abolishing fevers has resulted in the identification of a wide range of compounds that have been developed as new therapies for cancer, hypertension, diabetes and as anti-infectives [. The ealriest report of the toxicity of herbs originated from Galen, a Greek pharmacist and physician who showed that herbs do not contain only medicinally beneficial constituents, but may also be constituted with harmful substances. In many countries including the U.S, herbal medicines are not subjected to the same regulatory standards as orthodox drugs in terms of efficacy and safety.

This raises concern on their safety and implications for their use as medicines. Toxicity testing can reveal some of the risks that may be associated with use of herbs, therefore avoiding potential harmful effects when used as medicine (2, 3).

Tamarindus Indica a traditional herb pocessesing a number of medicinal properties the current research is aimed to determine its anti urolithic activity in albino rats.

MATERIALS AND METHODS (4, 5)

Plant collection

Tamarindus indica Linn traditional medicinal herb used in ayurveda ,sidda, unani system of medicine, native of India is selected for the proposed study and collected from Andhra Pradesh plant seed aqueous extract is prepared.

Preparation of plant seed extract

The crude aqueous extract was prepared by the simple infusion method using 100 g of triturated fresh leaves for 1 L ultrapure Milli-Q boiling water. After 30 min of infusion, the whole content was blended in a domestic blender, filtered by whatt'sman filter paper. The extract obtained was evaporated in rotary evaporator.

Administration of Doses

All the animals are treated with standard rat feed Group I serve as normal receives only normal saline,GroupII serve as positive control receives ammonium chloride 2% and ethylene glycol 0.75%,Group III serve as standard receives 5ml/kg cystone group and ammonium chloride 2% and ethylene glycol 0.75%, Group IV receives 400 mg/Kg *Tamirindus Indica* seed extract and ammonium chloride 2% and ethylene glycol 0.75%.

Acute oral toxicity studies

Toxicity studies conducted as per internationally accepted protocol drawn under OECD No 420 guidelines .The overnight fasted rats were divided into 3 groups, each group consisting of 3 animals. The aqueous extract of *Tamarindus indica* was given separately in various doses (50, 300 2000 mg/kg) by oral route. After administration of the extract, the animals were observed continuously for the first two hours and 24 hrs to detect changes in the behavioural responses and also for tremors, convulsion, salivation, diarrhoea, lethargy, sleep and coma and monitored for any mortality.

Experimental Design

The anti urolithic activity of Aqueous extract of *Tamirindus indica* seeds in albino rats was studied in Ammonium chloride (2% AC) and (0.75%) Ethylene glycol induced urolithiasis Healthy male albino rats weighing between 140-200 g were randomly divided into 04 groups with each consisting of 6 animals and the treatment with AC, EG mixed water was continued for 10 days.

Histopathological studies

Kidney tissue of all experimental animals is collected at the end of the study on 11 th day of study. Kidney tissue is collected through sacrificing the animal by employing the principles of euthanasia. The tissues collected are stored in 10% formalin solution which acts as a fixative.

RESULTS AND DISCUSSION

Percentage Yield of Extracts

By infusion followed by rotary evaporation the percentage yield, consistency and color was found and given in table-1.

S.NO	Extracts	Color	Consistency	Yield
01	Aqueous extract	Dark green	More sticky	7.5%

Table-2 Results of phytochemical Screening of aqueous extract

S.No	Class of compound	Plant part (seed)	Test performed
01	Alkaloids	+	Dragendorff's test,Mayer's test
02	Carbohydrates	+	Fehling test
03	Glycosides	+	Keller killiani test
04	Proteins and amino acids	+	Xanthoprotic test
05	Flavanoids	+	Ammonia test
06	Saponins	+	With water Na2co3
07	Phenolic compounds and tannins	+	Ferric chloride test

Anti urolithiatic activity *of Tamarinds Indica* seed extract

Effect of aqueous extract on Urine Volume, Urine Calcium, Urine Uric acid, Urine Magnesium, Serum Calcium, Serum Creatinine, Serum Magnesium against Ammonium chloride (AC 2%) and Ethylene glycol (EG 0.75%) induced urolithiasis was carried out and results is given in fig-1.

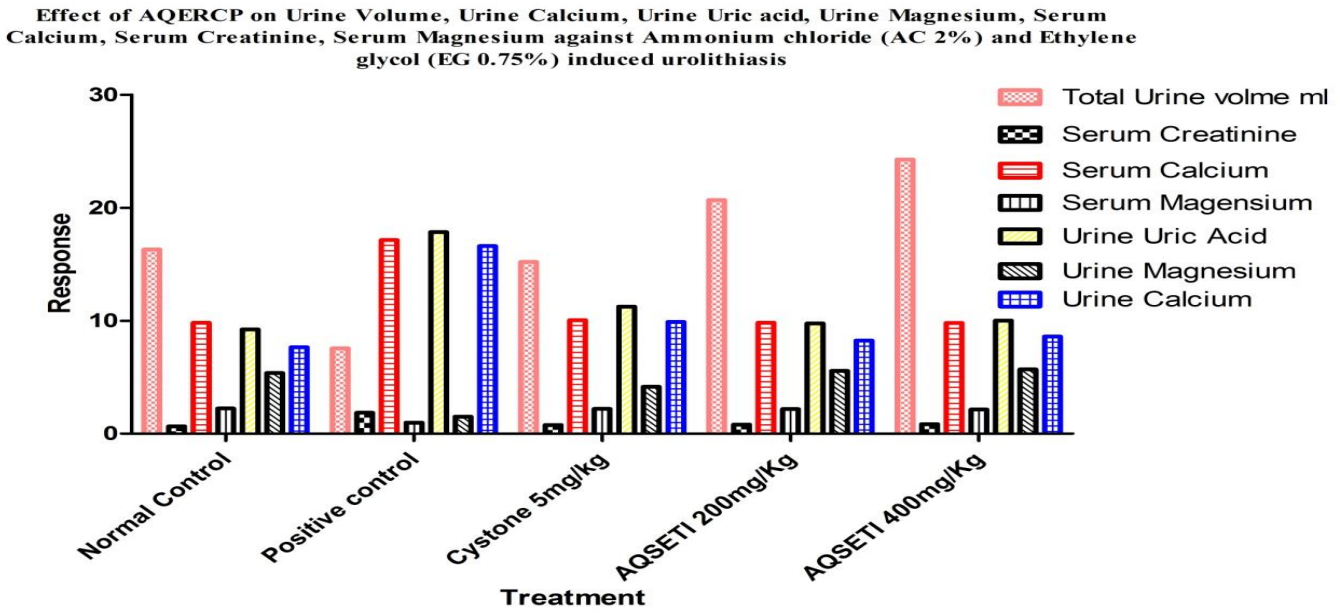

Fig-1 Graphical representation of Effect of aqueous extract on Urine Volume, Urine Calcium, Urine Uric acid, Urine Magnesium, Serum Calcium, Serum Creatinine, Serum Magnesium against Ammonium chloride (AC 2%) and Ethylene glycol (EG 0.75%) induced urolithiasis

Effect of *Tamerindus indica* aqueous seed extract on Kidneys of albino rats

Kidney tissue is collected through sacrificing the animal by employing the principles of euthanasia. The tissues collected are stored in 10% formalin solution which acts as a fixative. Histopathology of Group 1-4 is given 2-5.

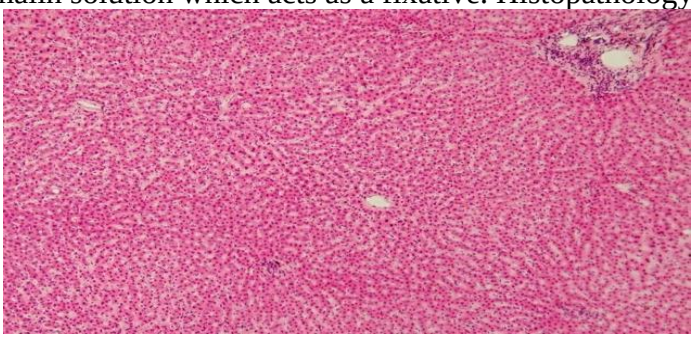

Fig-2 Group I (Normal)

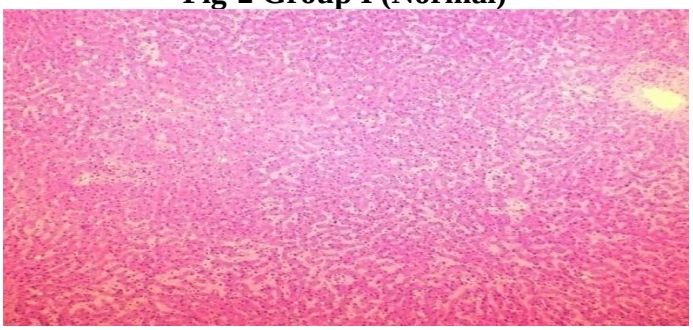

Fig-3 Group II (Control)

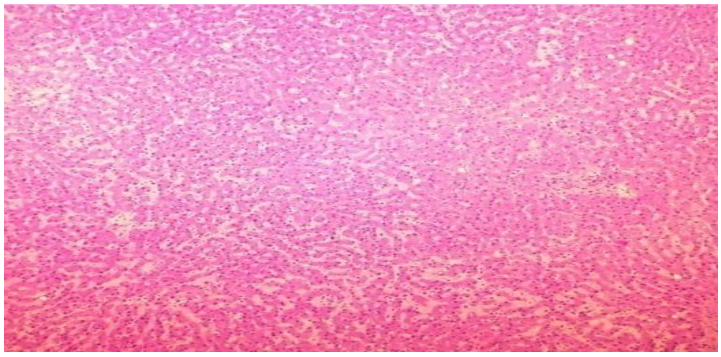

Fig-4 Group III 200 mg/kg aqueous extract treated rats

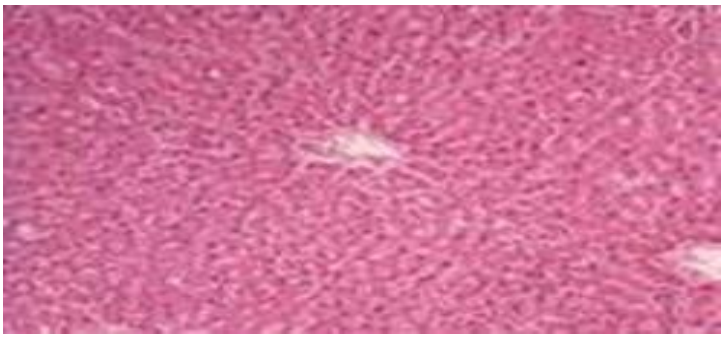

Fig-5 Group IV 400 mg/kg aqueous extract treated rats

CONCLUSION

From the study results it is identified the plant extract clearly exibit anti urolithiatic effect against Ammonium chloride and Ethylen Glycol induced urolithiasis in Albino rats. The study results also indicates dose dependent anti urolithiatic activity *of Tamarinds Indica* seed extract. Further expansion of the study include indentifying lead components of seed extracts by various chromatographic principles

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