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Antimicrobial activity of ethanolic extracts of *Phoenix loureiroi* Thorns

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Abstract
Phoenix loureiroi is commonly known as 'chittetha' and the plant leaves are used for household purpose. Preliminary chemical studies of the plant reveal the presence of glycosides, tannins & flavonoids. The main objective of the study is to evaluate the antimicrobial activity of *Phoenix loureiroi* thorn extract on *E. colli*, Bacillus & Streptococcus. Both the aqueous and ethanolic extracts showed good activity against all the microorganisms used. The crude extracts at a dose of 500mg/ml showed potent activity against *E. colli*, *Bacillus* & *Streptococcus*. Ethanolic extract was found to be more potent when compared with aqueous extracts.

Keywords: *Phoenix loureiroi*, Ethanolic extract, Streptococcus, Thorns

Introduction
Plant-based drugs have been used against various diseases since a long time. India has a wide range of medicinal plants. But the essential values of some plants have long been published; even today there are many plants that need to be explored. It is essential to conduct pharmacognostic & pharmacological studies to ascertain their therapeutic properties. *Phoenix loureiroi* is one among them. *Phoenix loureiroi* (Aracaceace) is commonly known as Chittetha a well-known wild plant of Telangana. This is being used only for house-hold purposes. Leaves of this plant shows mild activity but there are no reported antimicrobial activities on the plant thorns till date.

Materials & Method
Plant material: The *Phoenix loureiroi* (Aracaceace) dried thorns were collected from wild source Karimnagar, India in the month of Jan-2012. The plant was authenticated by Raju, Dept. of Botany, Kakatiya University Warangal.

Preparation of extracts: 30gm of powdered drug weighed & filled in soxhlet apparatus for extraction of the drug with 90% ethanol, percentage yield was calculated for each extract after drying. The microorganism cultures were obtained from maintained cultures from Kakatiya University, Warangal, Telangana.

Chemicals: Tetracycline was procured from Taranath scientific & surgical stores, Karimnagar.

Method: Ethanolic extract of crude drug was tested on various microorganisms such as *Salmonella typhi, Proteous vulgaris, E. colli, Staphyllococus, Bacillus & Streptococcus.*

Well diffusion method: Test solution ethanolic extract was prepared at a conc. of 500mg/ml. Tetracycline was taken as standard for antimicrobial activity at a conc.100µg/ml. Nutrient agar medium was prepared & sterilized by autoclaving. In an aseptic room, the medium was poured into sterile petridishes to uniform depth & then allowed to cool at room temperature. Before it could solidify the agar medium was mixed with the test organisms (1day old subcultures) and allowed to solidify. The microorganisms were inoculated onto the solid agar media with of an L-shaped rod by spreading on the solidified agar plates. Then the wells were made in the solidified agar plates with the help of sterile glass borer of size 4mm & capacity of 1ml in solidified agar in such a way that overlapping of zone of inhibition doesn't occur. The sample, control and standard were poured into respective bores. Plates were kept at room temperature for half an hour for diffusion of the sample into agar media.

The organism Inoculated petridishes were then incubated for 24hrs at 35 ºC. After the completion of incubation produced by the sample with different organisms in different organisms in different plates was measured & recorded immediately.

Statistical analysis

The values of all the above methods were expressed as mean±SEM. Total variation was estimated through Student paired t-test. Values of $P<0.1$ & $P<0.05$ were considered statistically significant.

Results & Discussion

Antimicrobial activity of ethanolic extracts of thorns of *Phoenix loureiroi* was studied by measuring the zone of inhibition formed around the agar well & the results were given in the Table no.1. The extracts showed maximum activity against *Streptococcus, Bacillus and E. colli.* Thus the plant shows antimicrobial activity & can be a potent ingredient for herbal products.

Table 1: Zone of inhibition in cm

Name of the organism	Control	Tetracycline (std.) 100µ/ml	Ethanolic extract 100mg/ml
Bacillus cereus	-	34.0	14.0
E. colli	-	65.00	14.2
Streptococcus	-	25.0	14.6

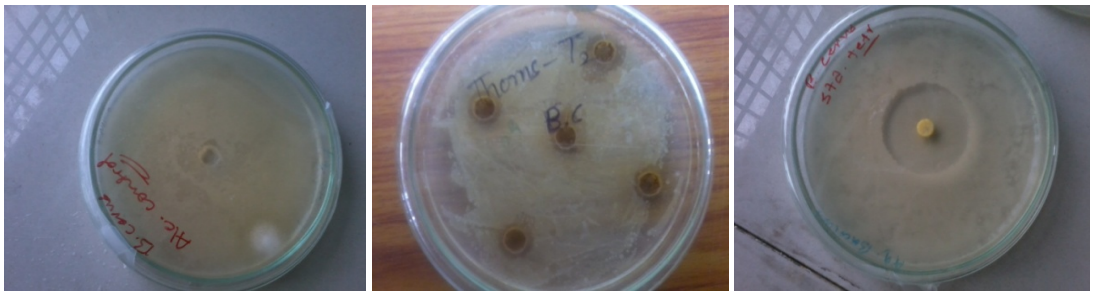
Streptococcus

Control test standard

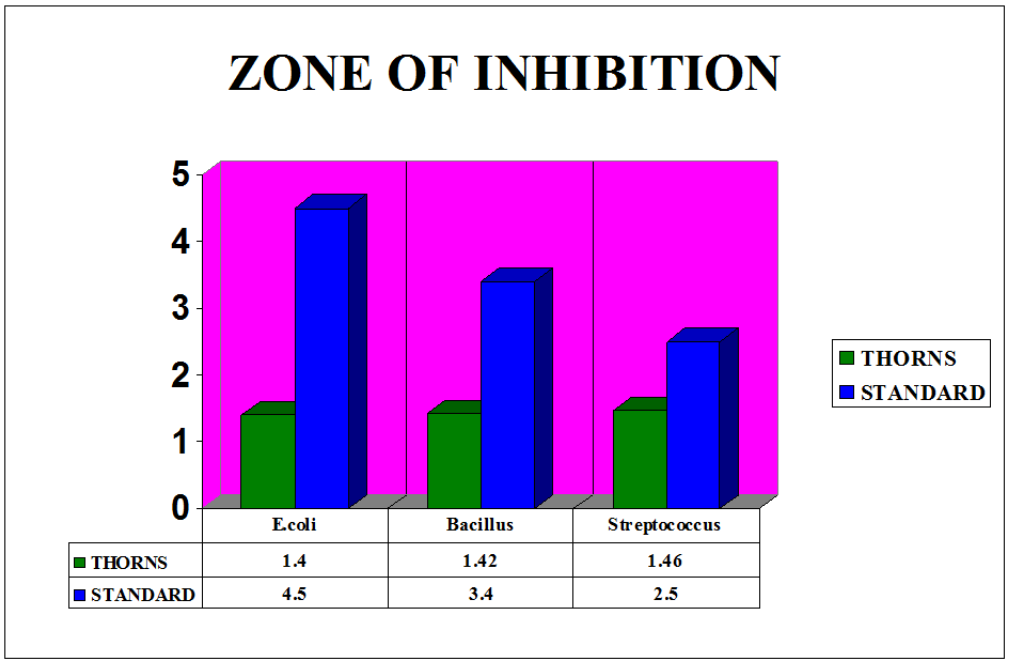
E. coli

Control test standard

Bacillus cereus



Control test Standard



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