

Research Article

Evaluation of antimicrobial activity of roots of *Pongamia glabra* vent

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ABSTRACT

Pongamia glabra vent (polygonaceae) is a well known traditional ayurvedic medicine which is used to treat wide variety of diseases and the root is traditionally used in the treatment of skin diseases, ulcers, piles, tumors, wounds etc. The acetone and methanolic extracts of roots of *Pongamia glabra* was investigated for its anti-microbial activity like antibacterial (*Staphylococcus aureus* and *Escherichia coli*) and anti-fungal (*Candida albicans*) using cup plate method. Methanolic extract showed significant antimicrobial activity which was comparable with standard antibacterial drug chloramphenicol (10 mg/ml) and amphotericin. Further, the development of suitable formulation and its standardization will provide a research for the researcher in future.

Keywords: *Pongamia glabra*, anti-microbial activity, methanolic extract, cup plate method.

INTRODUCTION

Anti-microbial studies involves the measurement of relative potency of activity of compounds by determining the amount required to produce a stipulated effect on a suitable organism under standard conditions.

Method

This activity is based on cup plate method which depends on the diffusion of various extracts from a cavity through the solidified agar layer of petridish to an extent such that growth of added microorganism is prevented entirely in a circular area or zone around the cavity containing acetone and methanolic extracts of roots of *Pongamia glabra* vent which is compared with the standard.

Procedure

Using a micropipette, 0.2 ml of each of the seeded broth containing 10-10 cfu /ml test organism was inoculated on the solidified agar plate and spreaded uniformly with a glass spreader. Then, two wells were cutout in the agar layer of each plate with an aluminium bore. To one of the well, 0.2

ml of solution of standard drug chloramphenicol 10 mg/ml and another well acetone extract of *Pongamia glabra* was added in the next plate. Methanolic extract of *Pongamia glabra* and standard drug were placed. For antifungal activity Amphotericin (10 mg/ml) was taken which was used as standard. The acetone and alcoholic extracts of roots of *Pongamia glabra* were taken in other wells. All the works were carried out under aseptic condition. The plates were left at room temperature for one hour after the addition, to allow the diffusion of solution into the medium and incubated at $37 \pm 1^\circ$ C for 18 hours. After the incubation period, the diameter of zone of inhibition was measured.

RESULTS

The acetone and methanolic extract of roots of *Pongamia glabra* was screened of antibacterial activity against *Staphylococcus aureus* and *Escheria coli* and antifungal activity against *Candida albicans*. The standard drugs and sample solution were prepared by dissolving 100 mg in 100 ml of DMSO (10 mg/ml). The

methanolic extract showed better antibacterial activity against strain aureus and anti-fungal activity than acetone

extract which was compared with the standard drugs.

Anti bacterial activity of the extracts of the root of <i>Pongamia glabra</i> vent			
Samples	organism	Diameter of zone of inhibition	Inference
Acetone Extract	Staphylococcus aureus	4mm	Sensitive
Alcohol Extract		8 mm	Sensitive
Chloramphenicol		15 mm	Sensitive
Solvent control		---	---

Anti-fungal activity of extracts of the root of <i>Pongamia glabra</i> vent			
Samples	organism	Diameter of zone of inhibition	Inference
Acetone Extract	Candida Albicans	6 mm	Sensitive
Amphotericin		10 mm	Sensitive
Alcoholic		17 mm	Sensitive
Solvent control		---	---

REFERENCES

1. Murugesu Mudaliyar KS. Gunapadam Siddha Materia Medica. 1:5-8.
2. Trease GE and Evans WC. Pharmacognosy, 12 th editon ELBS, 1983;28-34.
3. Indian Pharmacopoeia 1996 ;2:A-53,A-54 20-34.
4. Kannusamy Pillai ,Vaidhya Pathartha guna vilakkam. 5-8.