



Short Communication

Antibacterial Activity of Methanolic Extract of *Thespesia populnea* (Malvaceae) Flowers

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Abstract

Preliminary phytochemical screening of *Thespesia populnea* demonstrated the presence of flavonoids, glycosides, saponins, alkaloids and triterpenes. Antibacterial activity of methanolic extract of *Thespesia populnea* was checked at a lowest concentration by cup and plate method. Zones of inhibition produced by methanolic extract in a dose of 5, 10, 25, 50 and 100 µg/ml against some selected strains was measured and compared with those of standard antibiotic levofloxacin (10 µg/ml).

Keywords: *Thespesia populnea*; antibacterial activity; cup and plate.

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1. INTRODUCTION

Thespesia populnea (Malvaceae) is a large tree found in tropical regions and coastal forests of India. The different parts of this plant were used in the treatment of cutaneous infections such as scabies, psoriasis, eczema, ringworm, guinea worm and inflammation (Ilavarasan et al. 2005). The medicinal properties of *Thespesia populnea* were found to be antifertility, antimicrobial, anti-inflammatory, antioxidant, purgative and hepatoprotective activities (Shirwaikarkumar et al. 1995). The increase in infectious diseases caused by bacteria, viruses or fungi and the prevalent resistance of microorganisms to antibiotics and antiviral agents urges us to search for new medicinal compounds which are novel and more efficiency (Ferreira et al. 2003).

2. MATERIALS AND METHODS

The flowers of *T. populnea* was collected from Erode and its surroundings in the month between April-June 2012. It was identified and authenticated by taxonomist Prof.G.V.S.Murthy, Joint Director at the Botanical Survey of India (BSI), Coimbatore, Tamilnadu, India and voucher specimen (SC 5/23) was

deposited in the herbarium of the laboratory of botany, BSI, Coimbatore, Tamilnadu, India for future reference.

The flowers of *T. populnea* was dried in shade and crushed to fine powder. 50 gms of flower powder was extracted in 500ml of methanol by maceration process (48hrs). The solvents were removed under the vacuum at temperature below 50°C and the extracts were stored (Saravana Kumar et al. 2008). A semisolid brown crude extract of flowers so obtained was tested for the antibacterial activity against various bacterial strains. These bacterial strains were obtained from National Collection of Industrial Microorganisms (NCIM), Pune, India.

The nutrient agar media plates were prepared, sterilized and incubated at 37°C for 24hrs different dilutions of the methanolic extract were prepared and introduced in to the holes made on the surface of the plate. The *in vitro* antibacterial activity of methanolic extract of *T. populnea* at 5, 10, 25, 50 and 100 µg/ml was studied by cup and plate method (Nascimento et al. 2000; Betoni et al. 2006) against *Streptococcus faecalis*, *Bacillus licheniformis*, *Shigella flexneri*, *Rhodococcus terrae*, *Micrococcus flavum*, *Flavobacterium devorans*

and *Brevibacterium leuteum*. The petri dishes were incubated at 37 °C for 24hrs and the diameter of the zone of inhibition measured in mm. the activity of the methanolic extract was compared with levofloxacin (10 µg/ml). The zone of inhibition was calculated by measuring the minimum dimensions of the zone of no microbial growth around the hole/cup minimum inhibitory concentrations were determined. An average of three independent determinations was recorded (Table 1).

3. RESULTS AND DISCUSSION

The methanolic extract of *T.populnea* exhibited moderate to significant antibacterial activity against six

out of seven tested bacterial organisms as compared to the standard levofloxacin (10 µg/ml). The study revealed that methanolic extract of the crude drug was very much effective against *R.terrae*, *B.licheniformis*, *M.flavum* and *B.leuteum* (Gram positive) and not effective against *S.flexneri* and *F.devorans* (Gram negative) bacteria's at this lower concentration range studied when compared to our previous report.

On the basis of the results it is inferred that the methanolic extract of *T.populnea* flowers had *in-vitro* antibacterial activity. Further phytochemical studies are needed to identify active constituents responsible for the observed activity.

Table 1. Antibacterial activity of methanolic extract of flowers of *T.populnea*.

Bacteria used	Concentrations studied (µg/ml)					MIC (µg/ml)	Levofloxacin (10 µg/ml)
	5	10	25	50	100		
	Zone of Inhibition (mm)						
<i>S.flexneri</i> NCIM 4924	0	0	0	0	0	0	18
<i>R.terrae</i> NCIM 5126	8	10	12	17	21	5	23
<i>M.flavum</i> NCIM 2376	0	0	14	17	22	25	16
<i>B.leuteum</i> NCIM 2923	0	0	0	0	8	100	25
<i>F.devorans</i> NCIM 2581	0	0	0	0	0	0	30
<i>S.faecalis</i> NCIM 2406	0	0	0	0	0	5	28
<i>B.licheniformis</i> NCIM 2468	0	0	7	7	8	25	22

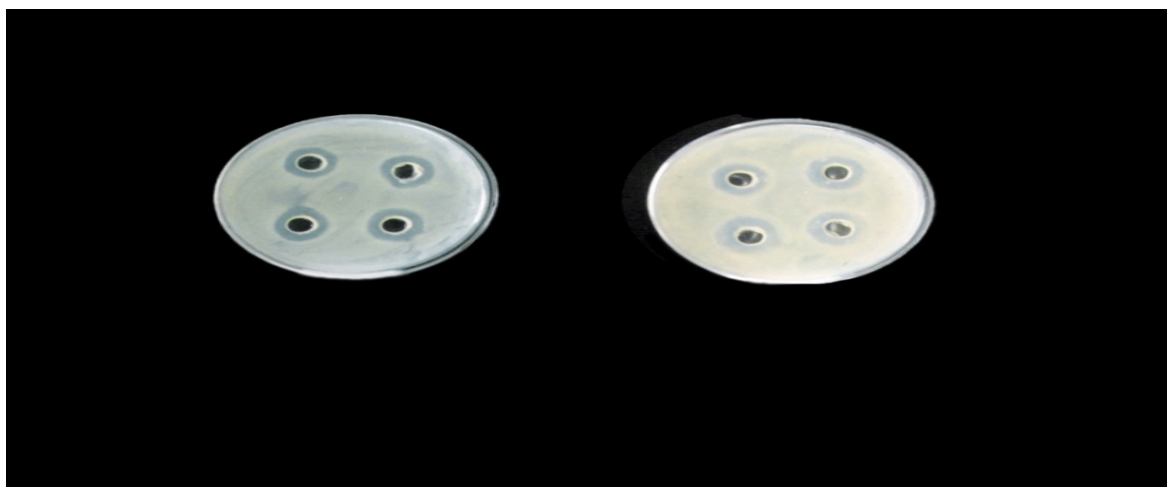


Fig 1. Zone of inhibition of methanolic extract of *T.populnea* flowers

4. REFERENCES

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