

ANTIBACTERIAL ACTIVITY OF ROOT EXTRACT OF TRIANTHEMA DECANDRA

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ABSTRACT: Methanolic extract of *Trianthema decandra* was investigated for its antibacterial activity against *Staphylococcus aureus* (NCIM 2079), *Escherichia coli* (NCIM 2065), *Bacillus subtilis* (NCIM 2063), *Pseudomonas aeruginosa* (NICIM 2036) and *Proteus vulgaris* (NICIM 2027) at 100 µg/disc using disc diffusion method. The extract showed significant antibacterial activity and were comparable to Chloramphenicol (30/µg/disc). Our findings confirm the traditional therapeutic claims for this herb.

INTRODUCTION

Trianthema decandra (Aizoaceae) is a prostrate weed widely distributed in India¹. The leaves are eaten during the times of scarcity^{1,2}. The root is used in hepatitis and asthma. A decoction of the root bark is credited with aperient properties. In orchitis, the root is ground in milk and administered^{2,3}. The present study was undertaken to study the antibacterial activity of the root extract of this plant.

MATERIALS AND METHODS

Preparation of extract

The roots *Trianthema decandra* were collected at Gobichettipalayam, Tamilnadu, India. The roots were shade dried, pulverized and sieved through 40 mesh. The powdered roots were extracted with methanol in Soxhlet apparatus. The methanol extract obtained were evaporated under vacuum to remove the solvent completely. Then these were taken for further study.

Bacterial Strains

Bacterial strains used for testing included *Staphylococcus aureus* (NCIM 2079), *Escherichia coli* (NCIM 2065), *Bacillus subtilis* (NCIM 2063), *Pseudomonas aeruginosa* (NICIM 2036) and *Proteus vulgaris* (NICIM 2027). These were obtained from National collection of Industrial Microorganisms, Pune, India. The stock culture was maintained on Mueller Hinton agar medium (Himedia Chemicals) at 37°C.

Antibacterial activity

Antibacterial activity of the extract of *Trianthema decandra* was studied using the disc diffusion method⁴. Petriplates containing 10ml of Muller Hinton agar medium were seeded with 24th old culture of a selected bacterial strain. Sterile filter paper discs (6mm) containing 100 µg/disc of a plant extract residue dissolved in acetone were placed on the surface of the medium. Acetone and water alone served as negative controls. A standard disc containing chloramphenicol antibiotic drug (30 µg/disc) was used as a

positive control. Incubation was done for 24th at 37°C. The assessment of antibacterial activity was based on the measurement of diameter of zone of inhibition formed around the disc. Six determinations were conducted for the extract.

RESULTS AND DISCUSSION

The methanolic extract of *Trianthema decandra* showed significant all the bacteria tested (Table

1). Plants showing significant therapeutic activity may be due to the presence of alkaloids, flavanoids, tannins, polyphenolics and oil.^{5,6}

These results suggest the presence of either good antibacterial potency or of the high concentration of an active principle in the extract. The high degree of antibacterial activity seems to confirm the folk therapy of infections and traditional therapeutic claims of his herb.

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Table – 1
Antibacterial activity of root extract of *Trianthema decandra*

Sl. no	Organisms tested	Diameter of inhibition zone (mm)	
		Extract (100 µg /disc)	Chloramphenicol (30 µg /disc)
1.	<i>S.aureus</i>	28	31
2.	<i>E.Coli</i>	26	29
3.	<i>B.subtilis</i>	28	29
4.	<i>P.aeruginosa</i>	22	26
5.	<i>P.vulgaris</i>	24	28