

## ANTIBACTERIAL STUDIES ON LEAF EXTRACT OF ELEPHANTOPUS SCABER Linn

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**ABSTRACT:** Methanolic extract of *Elephantopus scaber* Linn was investigated for its antibacterial activity against *Staphylococcus aureus* (NCIM – 2079), *Escherichia coli* (NCIM-2067), *Bacillus subtilis* (NCIM-2063), *Pseudomonas aeruginosa* (NCIM-2036), *Proteus vulgaris* (NCIM-2027) at 100 µg/disc by using disc diffusion method. The extract showed significant anti bacterial activity and were compared to chloramphenicol (30 µg/disc).

### INTRODUCTION

#### VERNACULAR NAME <sup>1-2</sup>

Tamil: Anashovadi,

English: Prickly-leaved elephant's foot.

*Elephantopus scaber* Linn belonging to the compositae family. It is an erect, perennial plant; grow up to 15-35 cm height. Rootstock is short, giving off many stout fibrous roots; stem usually branched with white hairs. Leaves mostly radical oblong in shape and base is tapering end. The plant is widely distributed in Warmer parts of India. The leaf has been used in Brazil as diuretic and to treat bladder stone<sup>3</sup>. A decoction of the root is used as antiemetic and whole extract is used as diuretic, an antidote for snakebite and an astringent<sup>1</sup>. The present study was undertaken to explore the exploited anti bacterial activity by the method already prescribed<sup>4</sup>.

### MATERIAL AND METHODS

The leaf of *Elephantopus scaber* was collected at Erode district of Tamil Nadu. The leaves shade dried, pulverized, sieved through 40 mesh and retained in 60-mesh

size were collected. Thus obtained powder was extracted with methanol by continuous hot extraction in soxhlet apparatus. The methanolic extract obtained was dried by evaporation under vacuum to remove solvent completely.

### BACTERIAL STRAINS

Bacterial strains used for testing included *Staphylococcus aureus* (NCIM 2709), *Escherichia coli* (NCIM 2065), *Pseudomonas aeruginosa* (2036), *Bacillus subtilis* (NCIM 2063) and *Proteus vulgaris* (NCIM 2027). These were collected from national collection of industrial microorganisms, Pune, India. The stock culture was stored in Muller Hinton agar medium at 37°C.

### ANTIBACTERIAL ACTIVITY

Antibacterial activity of the methanolic extract of *Elephantopus scaber* Linn was studied using disc diffusion method. Petridishes containing 10 ml of Muller Hinton agar medium were selected with 24hrs culture of a selected bacterial strain.

Sterile filter paper discs (6mm) containing 100 µg/disc of leaf extract were placed on the surface of the medium. Negative and positive controls were also maintained. Petridishes were incubated for 24 hrs at 37°C and 21°C for bacterial and fungal

strains respectively. The assessment of a antibacterial activity was based on the measurement of zone of inhibition observed around the discs. Six determinations were conducted for each extract.

S.NO	ORGANISM TESTED	ZONE OF INHIBITION (mm)	
		METHANOLIC EXTRACT 100 µg/disc	CHLORAMPHENICOL SOLUTION 30 µg/disc
1.	Staphylococcus aureus	29	32
2.	Bacillus subtilis	29	30
3.	Proteus vulgaris	25	29
4.	E.coli	27	30
5.	Pseudomonas aeruginosa	23	27

Table 1

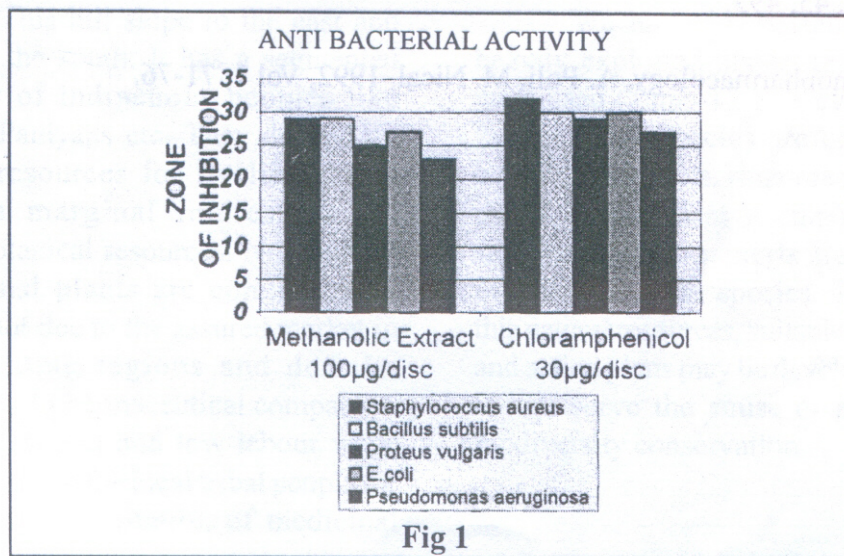


Fig 1

## RESULT AND DISCUSSION

The methanolic extract of *Elephantopus scaber* Linn showed significant anti bacterial activity against all the bacteria tested and tabulated in table 1. The plants showing significant therapeutic activity may be due to the presence of sesquiterpene dialactone isodeoxy elephantopin<sup>5</sup>. This result may

reveal the presence of good antibacterial efficacy of an active principle in the extract. The high degree of antibacterial activity seems to support the folk therapy for infection and traditional therapeutic claims of this plant.

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