

ANTIBACTERIAL ACTIVITY AND ANATOMY OF *Asparagus racemosus*

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Asparagus racemosus commonly known as *Satavari* is a medicinal plant growing wild in tropical and sub tropical parts of Sri Lanka including Jaffna. This has short root stock bearing numerous fusiform, succulent tuberous roots. Roots and leaves are used for medicinal purpose. This increases the breast milk secretion when intake with cow milk. The roots contain ateroidalsaponin which inhibits the growth of several pathogenic organism. In this study antibacterial activity of different solvent extracts (ethanol, methanol, water) of dried root powder was carried out using agar well diffusion method. Bacteria used were gram positive *Bacillus sphaericus*, *Staphylococcus aureus* and gram-negative *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella ozaenae* and *Proteus vulgaris*. Inhibition effect of ethanol extract of dried root powder of *A. racemosus* was found to be higher than methanol extract for *Bacillus sphaericus*, *Pseudomonas aeruginosa* and *Klebsiella ozaenae*. Effect of methanol extract was found to be higher than the ethanol extract in *Escherichia coli*, *Staphylococcus aureus* and *Proteus vulgaris*. Ethanol extract of *A. racemosus* produced the highest zone of inhibition for *Pseudomonas aeruginosa* (3.39±0.01cm) followed by *Bacillus sphaericus* (2.8±0.01cm), *Klebsiella ozaenae* (2.79±0.03cm), *Escherichia coli* (2.43±0.10cm), *Staphylococcus aureus* (2.00±0.10cm) and *Proteus vulgaris* (1.80±0.01cm). Water extract of *A. racemosus* was less effective than ethanol and methanol extracts in inhibiting the bacteria *Bacillus sphaericus*, *Pseudomonas aeruginosa* and *Proteus vulgaris*. Ethanol and water extracts equally inhibit *Escherichia coli*. But *Staphylococcus aureus* and *Klebsiella ozaenae* were not at all inhibited by water extract. Anatomy of root was studied using simple staining technique. Clear pith is found in the centre. Pericycle, cambium and endodermis and thick storage tissues are found towards outside the pith. Single layer of epidermis, 4-5 layers of colenchyma, 3-5 layers of sclerenchyma and polyarch arrangement of xylem with phloem in between is found in the vascular system. This study scientifically supports the use of *Asparagus* roots as a remedy for various superficial bacterial infections in traditional medicine. *A. racemosus* extract with a better result can be subjected to dose response study and used for further isolation and purification of novel bioactive molecules which may be active against a wide range of plant and human pathogenic bacteria.

Key words: Antibacterial activity, Solvent, Roots, *Asparagus racemosus*