



# In Vitro Antibacterial Activity of Root Extract of *Asparagus resimoses* in Urinary Tract Infection

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## Abstract:

*Asparagus resimoses* is one of the most important medicinal plant shows antibacterial activity against the uropathogens. It is commonly known as Shatawari. Its medicinal properties are reported in traditional system of medicine such as Ayurveda, Siddha and Unani. In vitro antibacterial activity was conducted in bacterial strain isolated from urine samples from patients suffering from urinary tract infection. Total 25 urine samples were collected randomly from various hospitals and pathology laboratories in Chandrapur area and roots of *Asparagus resimoses* were collected from forest of Chandrapur area. Effect of methanol extract of *Asparagus resimoses* was tested invitro by agar well diffusion method at concentration of 1 ug/ul and 0.1 ug/ul in Dimethyl Sulphoxide. Methanol extract at concentration 1 ug/ul shows more activity against most of the bacterial strains isolated from urine samples. The effects produced by methanolic extract were compared with Nitrofurantoin.

The study revealed that *the Asparagus resimoses* can be effective against the pathogens causing urinary tract infection and it helpful to doctors to cure urinary tract infection.

## Keywords:

*Asparagus resimoses, Antibacterial activity, Urinary tract infection*

## Introduction:

Plants have been source of medicines from ancient time. *Asparagus resimoses* is one of the medicinal plant used traditionally around the world and its medicinal properties are reported in traditional system of medicine such as Ayurveda, Unani and Siddha.<sup>6</sup> *Asparagus resimoses* is commonly known as shatawari which belongs to family *Lilaceceae*, includes 300 species around the world.<sup>7</sup> The root of *Asparagus resimoses* are tuberous, 30-100 cm long and 1-2 cm thick clustered.<sup>3</sup> The root shows wide range of medicinal properties and used in gastric ulcers, Dyspepsia, galactagogue and nervous disorders.<sup>4</sup> It is also used as Antiseptic, anthelmintic and antidiarrhoeal.<sup>2</sup> The methanolic extract of *Asparagus resimoses* shows considerable antibacterial activity against various common bacterial pathogens.<sup>3</sup> Present study shows the antibacterial activity of root extract of *Asparagus resimoses* against the uropathogens.

## Material and methods:

**Collection and extraction of plant material :** The plant material were collected from the forest region of Chandrapur district of Maharashtra state,



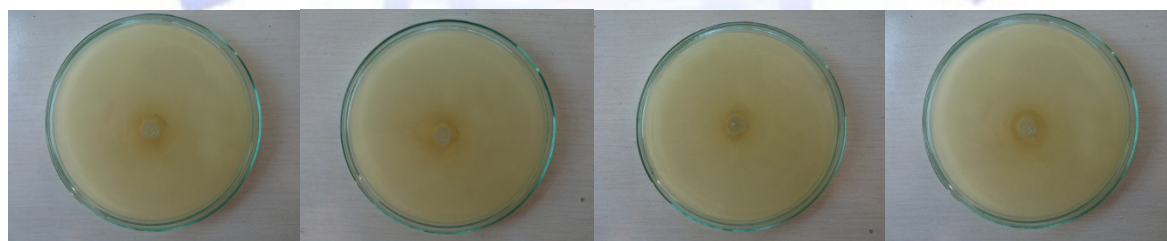
The roots of plant material were dried and subjected to grinding to prepare fine powder and methanolic extract was prepared.

**Collection of Urine specimens and identification of organisms:** Clean catch total 25 urine specimens was collected from indoor and outdoor patients from various hospitals and pathology laboratories in Chandrapur area in sterile disposable containers in aseptic condition. The loopful of the sample are cultured on Nutrient agar plates. Isolated colonies are separately cultured on UTI isolation agar plates (Himedia).

**Antibacterial Assay:** Antibacterial activity of methanolic extract of *Asparagus resimoses* (1 µg/ul and 0.1 µg/ul conc. in D.M.S.O.) was done by agar well diffusion method on Muller Hinton agar plates against isolated uropathogens such as *E. coli*, *Klebsiella species*, *Proteus species* and *Staphylococcus species*.<sup>5</sup> The standard antibiotic, Nitrofurantoin was used as positive control and the antibiotic assay was done by agar disc diffusion method by using Muller Hinton agar plates.<sup>1</sup>

### Result and discussion:

In various isolates, methanolic extract of 1 µg/ul conc., *E. coli* show maximum zone of inhibition was 18 mm, *Klebsiella species* shows 15 mm, *Proteus species* shows 22 mm and *Staphylococcus species* shows 13 mm. At extract of 0.1 µg/ul conc., *E. coli* show maximum zone of inhibition was 13 mm, *Klebsiella species* shows 12 mm, *Proteus species* shows 18 mm and *Staphylococcus species* shows 11 mm. In our study, the methanolic extract of *Asparagus resimoses* has significant antibacterial activity against uropathogens such as *E. coli*, *Klebsiella species*, *Proteus species* and *Staphylococcus species*.



(a)

(b)

(c)

(d)

**Figure:** In vitro antibacterial activity of root extract of *Asparagus resimoses* in uropathogens showing zone of clearance (a) *E. coli*, (b) *Klebsiella species*, (c) *Proteus species* and (d) *Staphylococcus species*.

### Conclusion:

The present study shows that the *Asparagus resimoses* shows antibacterial activity against the uropathogens such as *E. coli*, *Klebsiella*



*species, Proteus species and Staphylococcus species.* Further the study helps to use this plant as antibacterial in urinary tract infection to prevent the patient from side effect due to use of synthetic chemotherapeutic agents.

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