

ANTI-MICROBIAL SCREENING OF SIDDHA DRUG ATTHI PATTAI CHOORANAM

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Abstract

Atthi pattai (Ficus racemosa bark) chooranam is one of the siddha herbal drugs, which has been indicated for its anti-microbial activity. The aim of the present study was to validate anti-microbial activity of Atthi pattai chooranam extract against various micro-organisms. The micro-organisms used in the present study include Escherichia coli, Staphylococcus aureus, Streptococcus pneumoniae, Pseudomonas aeruginosa and Candida albicans. The anti-microbial study was conducted according to Kirby-Bauer Method. It was observed that Atthi pattai chooranam extract exerted anti-microbial activity against Staphylococcus aureus.

KEYWORDS

Anti-microbial activity, Ficus racemosa bark, Staphylococcus aureus.

INTRODUCTION

Siddha system of Medicine is the ancient, unique and potent among all systems of medicine. It was invented by Siddhars who were the spiritual scientists of the ancient of Tamil Land. It has not only the curative and preventive effects on different diseases but also paves the way for the longevity and immortality. Bacterial infection is one of the most serious global health in 21st Century¹. Many antibiotics are being developed to treat but their misuse is causing the so-called drug-resistant. So, the search of new anti-microbial agents has become indispensable. Nearly 1340 plants are known to be potential sources of anti-bacterial agents². There are several single and polyherbal siddha formulations used against microbial disorders in siddha³. Atthi pattai is one of the most widely used herbs in siddha system of medicines for centuries against various ailments⁴. Ficus racemosa belongs to the Moraceae family. All parts of the plant are medicinal cure. Bark of the plant cures dysentery, spongy gums, ulcers, diabetes, asthma, leucorrhoea and urinary problems. Bark is astringent⁵, refrigerant and anti-diabetic. A decoction of bark is used as a wash for wounds⁶. It is useful in asthma, piles and menorrhagia^{7,9}. Leaves and bark are used as poultice for eczema⁸.

MATERIALS & METHODS

PLANT MATERIAL

The fresh bark of Ficus racemosa were collected from in and around Palayamkottai, Tamil Nadu, India. The specimen of the bark was identified and authenticated by the botanists and experts of Gunapadam department, Govt. Siddha Medical College, Palayamkottai, Tamil Nadu, India. The bark of Ficus racemosa were cleaned well and allowed for completely drying in a shadow place. Then the bark was cut into pieces and made into powder form by using stone mortar. This powder was sieved by thin white cloth and purified by the method mentioned in the siddha classical text¹⁰. After purification, the powder form of bark was preserved in an airtight container¹¹.

ANTI – MICROBIAL ACTIVITY BY KIRBY BAUER METHOD

Components of Mueller Hinton Agar Medium:

Beef Extract	-	300 gms /lit
Agar	-	17 gms /lit
Starch	-	1.5 gms / lit
Casein Hydroxylate	-	17.5 gms/lit
Distilled water	-	1000 ml.
pH	-	7.6

PROCEDURE

The method of antimicrobial activity study¹² is UPS Diffusion Method. Antibiotic discs are prepared with known concentration of antibiotic and placed on agar plates that has been inoculated with the known pathogenic microorganism. The antibiotic diffuses through the agar producing an antibiotic concentration gradient, antimicrobial susceptibility is proportional to the diameter of the inhibitory zone around the disc¹³. If the microorganism which grows up to the edge of the disc is resistant to the antimicrobial agent.

The recommended medium in this method is Mueller Hinton Agar, its pH should be between 7.2 – 7.6 and should be poured to uniform thickness of 4mm in the petri plate (25ml)

METHODOLOGY

- Mueller Hinton Agar plates are prepared and Escherichia coli, Candida albicans, Staphylococcus aureus, Streptococcus pneumoniae, Pseudomonas aeruginosa are inoculated separately.
- The prepared discs of Atthi Pattai Chooranam are placed over the incubated plate using sterile forceps and incubated for 24 hours at 37° Celsius.
- The plates after 24 hours incubation is observed for the zone of inhibition.

RESULTS AND DISCUSSION

The activity of atthi pattai chooranam showed significant inhibition of bacterial growth in the culture plates against Staphylococcus aureus¹⁴ as shown in Table1 and Figure 1. S.aureus is the causative agent of wide variety of disease of suppurative infections such as boils and wound infections, superficial infection such as skin pustule, subcutaneous and submucosa abscess, osteomyelitis, broncho pneumonia and food poisoning, a common cause of vomiting and diarrhoea.

Table 1: Anti-bacterial activity of test drug

S.No.	Test Drug	Organisms (Culture)	Susceptibility	Zone size (mm)
1.	Atthi Pattai Chooranam	Escherichia coli	Resistant	-
2.		Staphylococcus aureus	Moderately sensitive	10mm
3.		Streptococcus pneumoniae	Resistant	-
4.		Pseudomonas aeruginosa	Resistant	-
5.		Candida albicans	Resistant	-

ANTI MICROBIAL ACTIVITY



STAPHYLOCOCCUS

Figure 1: Zone of inhibition of Atthi Pattai Chooranam extract

CONCLUSION

The study suggests that Atthi pattai chooranam have potential against pathogenic microbes and can be used as antimicrobial agent for treatment of various infectious diseases.

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