

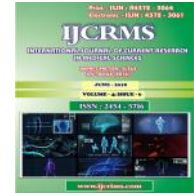


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Evaluation of anti bacterial activity of Kodupai Chooranam in preventing respiratory disorders

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Abstract

A tremendous interest exists in global herbals and herbal based medicine is rapidly increasing commercial and scientific value. Till now, the concept of herbal combination is appreciated with its superior efficacy and lesser side effects in comparison with either single isolated constituents of herbal. The greater interaction between traditional systems of medicine with modern tools has opened up the possibility to insight antimicrobial activities of herbal preparations . Target Anti bacterial herbal drug selection plays a vital role and considered to be a heart of the new siddha drug discovery . In a great majority of cases, bacterial species are considered to be the most commonly isolated organisms . Dating back to Siddha literature, “Siddha materia medica” indicates Kodupai herbal preparations for preventing Respiratory disorders. In this article, an attempt has been made to highlight the in depth scientific value and antibacterial sensitivity testing of the Siddha drug Kodupai chooranam ,to ensure quality health.

Keywords: Siddha, Kodupai chooranam, Respiratory disorders, Antibacterial sensitivity.

Introduction

The emergence of new infectious diseases, the resurgence of several infections that appeared to have been controlled and the increase in bacterial resistance have created the necessity for studies directed towards the development of new antimicrobials. In recent times, the search for potent antibacterial agents has been shifted to herbals. The anti microbial efficacy value attributed to some herbals is beyond belief.

Therefore, there is a need to develop alternative antimicrobial drugs for the treatment of infectious diseases .As a result herbals are still recognised as the bedrock for the modern medicine to treat infectious diseases.

WHO Estimation:

About 80% of world population use medicinal plants to treat human diseases. Because of available antimicrobials failure to treat infectious diseases, many researchers have focused on the investigation of natural herbals.

Objective:

The objective of the present study was to evaluate the antibacterial activity of Kodupai chooranam

by using agar diffusion assay. The zones of inhibition was represented by table and graph.

Materials and Methods

Method of preparation of the drug :

All the ingredients were collected, identified ,purified as per the Siddha Materia Medical procedures and made into Kodupai chooranam.



Figure: Kodupai chooranam

In vitro Anti-microbial activity:

The Kodupai chooranam was subjected to Anti-microbial sensitivity testing using Disc Diffusion Method at Malar Labs, Palayamkottai. Out of organisms tested, the drug Kodupai chooranam was sensitive against *Staphylococcus aureus* and *Sreptococcus pneumoniae* .The zone of inhibition given below.

Sample name : Kodupai chooranam
Solvent : Distilled water
Method : Kirby Bauer
Medium : Prepared plates of Muller Hinton Agar (M173)

Preparation of plates for susceptibility tests:

Components of Muller Hinton Agar (M173) 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

The medium was prepared from the components and poured and dried on a petri dish. The organism was streaked on the medium and the test drug (1 gm drug in 10 ml distilled water) was placed on the medium. This is incubated at 37°C for one over night and observed over night and observed for the susceptibility shown up clearance around the drug.

The Kodupai chooranam was screened against bacterial strains by using agar disc–diffusion as shown in Table

S.No	Organisms	Extract(mm)	Positive Control Amikacin (mm)
1	<i>Streptococcus pneumonia</i>	22	24
2	<i>Staphylococcus aureus</i>	20	20
3	<i>Escherichia coli</i>	18	20

The Kodupai chooranam was screened against bacterial strains by using Muller Hinton Agar (M173) agar disc –diffusion Kirby Bauer Method.

Results

The drug Kodupai chooranam was sensitive against *Staphylococcus aureus* zone of inhibition 20mm , *Streptococcus pneumoniae* with zone of inhibition 22 mm and *Escherichia coli* with zone of inhibition 18 mm.

Discussion

Description about the causative Micro organisms:

Staphylococcus aureus:

Gram positive cocci that occur in grape-like clusters. They are ubiquitous and are the most common cause of localised suppurative lesions in human beings. Staphylococci were first observed in human pyogenic lesions by Von Recklinghausen in 1871. Pauster (1880) obtained liquid cultures of the cocci from pus and produced abscesses by inoculating them into rabbits.

Pathogenicity:

Staphylococcal infections are among the most common of bacterial infections and range from the trivial to the fatal. Staphylococcal infections are characteristically localised pyogenic lesions, in contrast to the spreading nature of Streptococcal infections. Common Staphylococcal infections in Respiratory system are Tonsillitis, pharyngitis, sinusitis, otitis, bronchopneumonia, lung abscess, empyema, rarely pneumonia.

Streptococcus pneumoniae :

Pneumococcus ,a Gram-positive, lanceolated diplococcus, formerly classified as *Diplococcus pneumonia* has been reclassified as *Streptococcus pneumonia* because of its morphology, bile solubility, optochin sensitivity and possession of a specific polysaccharide capsule. Pneumococci are normal inhabitants of the human upper respiratory tract. They are the single most prevalent bacterial agent in pneumonia and in otitis media in children. They can also cause sinusitis, bronchitis, bacteremia and other infections.

Morphology:

Streptococcus pneumoniae are typically small, slightly elongated cocci, with one end broad or rounded and the other pointed, presenting a flame-shaped or lanceolate appearance.

Pathogenicity:

Streptococcus pneumoniae colonise the human nasopharynx and cause infection of the middle ear, paranasal sinuses and respiratory tract by direct spread. The commonest pneumococcal infections are otitis media and sinusitis. Pneumococci are one of the most common bacteria causing pneumonia, both lobar and broncho pneumonia. They also cause acute tracheobronchitis and empyema.

Epidemiology:

Natural infection with Streptococcus pneumoniae has been reported in some species of animals such as guinea pigs but they have little relation to human disease. The source of human infection is the respiratory tract of carriers and, less often, of patients. Streptococcus pneumoniae occur in the throat of approximately half the population sampled at any one time. They are transmitted by fingers or inhalation of contaminated droplets or droplet nuclei. Dissemination is facilitated by crowding.

Description about Positive control Amikacin:

Aminoglycosides are antibiotics with amino sugars joined by glycosidic linkages. They are derived from the soil actinomycetes of the genus Streptomyces and the genus micro-monosporahence the difference in spelling. Amikacin and netilmicin are newer semisynthetic products.

Antibacterial spectrum :Aminoglycosides have a narrow spectrum and are effective mainly against aerobic organisms .

Uses:

Aminoglycosides are used in the treatment of infections due to bacteria. Aminoglycosides are also used in Streptococcal infections.

Amikacin a semi synthetic derivative of kanamycin, has widest antibacterial spectrum among aminoglycosides because it is resistant to aminoglycoside inactivating enzymes.

Conclusion

We conducted a prospective observational invitro study of antibacterial activity of Siddha drug, Kodupai chooranam .Thus , herbal drug Kodupai chooranam proves to play a vital role in preventing Respiratory disorders and considered to be a heart of the new siddha drug discovery .In a great majority of Respiratory disorders, bacterial species are considered to be the most commonly isolated organisms. Apart from their theoretical knowledge, our Ancestor have acquired great experience through their forefathers and palm leaf manuscripts. It is the duty of the Graduates of Siddha medicine to bring out these experiences, evaluate them and document them. We have taken a small initiative towards this step. We hope to extend the search for finding and documenting such good medicine with scientific sensitivity for overcoming various health problems.

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