



Antibacterial Screening of *Kodasuri Veeravaippu*, A Siddha Salt Preparation

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ABSTRACT

In siddha medicinal practice the use of plant extracts as well as inorganic natural preparations has a vital role as medicines. *Kodasuri veeravaippu* is one such formulation prepared by many inorganic compounds available in nature like Mercuric Chloride, Mercury, Sodium Chloride, Rock Salt, Potassium alum, Ammonium Chloride, Oxides of Calcium and Potassium, Copper Sulphate and Potassium Nitrate. It is proven medicine for rheumatoid arthritis and as an antibacterial. The present study was to test the antibacterial property of this drug on human pathogenic bacteria *Bacillus cereus*, *Bacillus subtilis*, *Proteus mirabilis*, *Citrobacter spp.*, *Staphylococcus aureus*, *Escherichia coli*, *Vibrio cholerae*, *Salmonella typhi*, *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*. The results were encouraging when compared to standard drug Ciprofloxacin.

Keywords: *Kodasuri veeravaippu*, Ciprofloxacin, Antibiotic, Rheumatoid Arthritis, Siddha salt.

INTRODUCTION

Siddha system of medicine is one of the oldest systems of medicine in Tamil Nadu, India. Herbal medicines are being used by about 80% of the world population mostly in the developing countries for primary health care. These medicines have stood the test of time for their safety, efficacy, cultural acceptability and lesser side effects. Indian medicinal plants and their derivatives have been an invaluable source of therapy due to their antibacterial, antihelminthic, anti ulcer, anti-inflammatory and even anticancer, antioxidant and anti-inflammatory¹⁻⁸. Salts like sodium Chloride etc. are known as good preservative for pickles, fishes and other forms of food industries due to their antibacterial properties. The use of siddha salt preparations, both as plant extracts as well as from natural salts is an old method. *Kodasuri veeravaippu*, a salt formulation from different natural salts, is one such medicine used in siddha system of medicine, which is used as an effective formulation for rheumatoid arthritis cure. The present study deals with the efficacy of this drug as antibacterial medicine.

MATERIALS AND METHODS

The preparation of this medicine is a complex process and requires the followings salts namely, 1. *Veeram* (Mercuric Chloride), 2. *Rasam* (Mercury), 3. *Kariyuppu* (Sodium Chloride), 4. *Kalluppu* (Rock Salt), 5. *Padikaram* (Potassium alum), 6. *Navacharam* (Ammonium Chloride), 7. Pooneeru (Oxides of Calcium and Potassium), 8. *Thurusu* (Copper Sulphate) and 9. *Vediyuppu* (Potassium Nitrate), at different concentrations. The test drug "*Kodasuri veeravaippu*" (100µg/disc) was tested for antimicrobial activity using agar disc diffusion assay according to the method of Bauer⁹. This medicinal preparation was tested on microorganisms namely, *Bacillus cereus*, *Bacillus subtilis*, *Proteus mirabilis*,

Citrobacter spp., *Staphylococcus aureus*, *Escherichia coli*, *Vibrio cholerae*, *Salmonella typhi*, *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* were studied. These strains were obtained and inoculated in conical flask containing 100 ml of nutrient broth. These conical flasks were incubated at 37°C for 24 h and were referred to as seeded broth. Media were prepared using Muller Hinton Agar (Himedia, Mumbai, India), poured on Petri dishes and inoculated with the test organisms from the seeded broth using cotton swabs. Sterile discs of six millimeter width had been impregnated with 20 µl of test extract and introduced onto the upper layer of the seeded agar plate. The plates were incubated overnight at 37°C. Antibacterial activity was assigned by measuring the inhibition zone formed around the discs. Ciprofloxacin (10µg/disc) was used as standards.

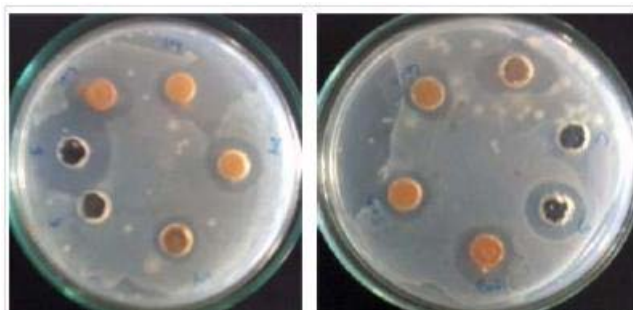
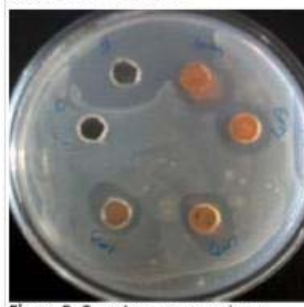
RESULTS AND DISCUSSION

The preliminary preclinical analysis of the test drug "*Kodasuri veeravaippu*" revealed the presence of elements having anti microbial effect as presented in quantitative study of the drug. The results obtained from the disc diffusion assay showed that there has been an increasing effect on bacterial growth. And the test drug "*Kodasuri veeravaippu*" showed good inhibitory activity on almost all the bacteria used. It has been found that among all the tested organisms, the test drug showed anti microbial activity as equal to the standard drug. The Gram positive bacterial strain, *Staphylococcus aureus* and the gram negative strain *Escherichia coli* were found to be more susceptible to the test drug "*Kodasuri veeravaippu*" by showing inhibition zone of 30mm and 22mm respectively. The antimicrobial presented in Table 1. The observed activity may be due to the presence of potent antimicrobial activity of the test drug "*Kodasuri veeravaippu*".



Table 1: Anti Microbial Study on “Kodasuri Veera Vaippu”
(by Agar disc diffusion assay method according to the method of Bauer et al., 1966.)

Name of the Organism	Zone of Inhibition/ mm					
	Standard drug/mm (Ciprofloxacin 10 µg)	Control Drug (HONEY)	1mg of test Drug/mm	2mg of test Drug/mm	5 mg of test Drug/mm	10 mg of test Drug/mm
<i>Bacillus cereus</i>	20	0	12	16	16	18
<i>Bacillus subtilis</i>	22	0	14	12	17	18
<i>Proteus mirabilis</i>	18	0	14	18	14	18
<i>Citrobacter spp.</i>	20	0	14	14	20	20
<i>staphylococcus aureus</i>	26	0	15	16	30	21
<i>E. coli</i>	17	0	22	14	15	20
<i>Vibrio cholera</i>	22	0	14	17	15	23
<i>Salamonella typhi</i>	25	0	17	19	20	20
<i>Pseudomonas aeruginosa</i>	24	0	17	20	17	27
<i>Klebsiella pneumoniae</i>	21	0	15	15	18	32

Figure 1: *Staphylococcus aureus*Figure 2: *Escherichia coli*Figure 3: *Vibrio cholera*Figure 4: *Salamonella typhi*Figure 5: *Pseudomonas auriginosa*Figure 6: *Klebsiella pneumoniae*

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