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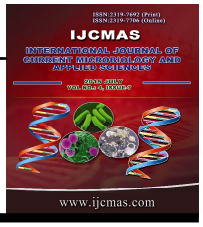


**Original Research Article**

# Studies on the antibacterial activity of Plant extract of *Kedrostis foetidissima* (Jacq.) cogn

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*K. foeditissima*, Seed, Leaf, Hexane, *Pseudomonas* sps

**A B S T R A C T**

Nowadays Medicinal plants constitute major source of drugs for prevention and spread of wide range of pathogenic carriers and also treating various diseases of human beings. Modern people increasingly prefer drugs of natural origin mostly of plants due to abundant accessibility fever side effects. In search of novel active compounds from Medicinal plants to assess the efficient therapeutic properties and play a crucial role in development of drug of interest. Plants are rich in a wide variety of secondary metabolites such as tannins, terpenoids, Alkaloids, steroids, flavonoids, glycosides, saponin, Mucilage, lipids etc. which have been found to have antimicrobial properties. In presents study, the various solvent extracts of different aerial parts of K.F was tested for their antibacterial efficacy, against some human pathogenic such as staphylococcus sps, Escherichia coli, Kebgiell, pseudomonas and bacillus subtitles,. The result were interpreted. The plant samples were extracted units methanol, Hexane, Chloroform and pet, ether extracts of all the extracts. Hexane extracts showed almost all type of anti bacterial activity against pseudomonas in different concentration particular in seed. The higher activity is seen comparatively with other parts of the plants.

## Introduction

Science and technology provides the necessary answer to many of problems, diseases, disorders and need of human beings. The modern technology of researches is beings developed with the aim not only making research and more widely available of improving the quality of medicine which is already available. The nature of these emerging research and innovators has been influenced by modern biology. Researchers work on learning situation has created a revolution in the field of science and technology.

The relationship between the objective of researchers and instructional technology appears to be reciprocal development in technology bring about changes and shifts in scientific goals which in the turn stimulate the emergence of newer techniques in scientific area of 'biotechnology'.

Several studies on antimicrobial substances from plants have been conducted by a number of investigators. These bioactive constituents include terpenoid, alkaloids, tennis, phenols, steroids, saponin and fatty oils which could be readily extracted from medicinal plants using solvents such as methanol, chloroform, petroleum ether and hexane. The anti microbial compounds present in medicinal plant extracts were identified by the following methods.

To substitute synthetic antibiotic, many of the modern and effective drugs have their origin in traditional folk medicine. (Natarajn et al., 2003) plants have been used to treat human, animals and plant disease from time immemorial, also herbal medicines have been known to man for centuries (Gounetal-2003 misra et al.1977) Therapeutic efficacies of many indigenous plants for many disorders have been described by practitioners of traditional medicine. (Almaqbool et al, 1985 Ig balatd 2002/ Khattach et at 1985).

Medicinal plants are a source of great economic value all over the world. Nature has bestowed on us a very rich botanical wealth and a large number of diverse types of plants growth in different parts of the country. Antimicrobials of plants origin have enormous therapeutic potential. Over the past few decades, these health benefits are under threat as many commonly used antibiotics have become less and less effective against certain illnesses not only because many of them produce toxic reactions, but also due to emergence of drug-resistant bacteria. It is essential to investigate newere drugs with lesser resistance (Farnsworth, 1993). Drugs derived from natural sources play a significant role in the prevention and treatment of human diseases. In many developing countries, traditional medicine is one of the primary health care systems (Houghton, 1995) Herbs are widely exploited in the traditional medicine and their curative potentials are well documented (Dubey et *al*., 2004. Plants are rich in a wide variety of secondary metabolites such as tannins, terpenoids, alkaloids, flavonoids, glycosides, which have been found *in vitro* to have antimicrobial properties (Cowan, 1999; Dhanukar *et al.,* 2000). The World Health Organization estimates that plant extracts or their active constituents are used as folk medicine in traditional therapies of 80% of the world's population (Shaik *et al.,* 1994). Biologically active compounds present in the medicinal plants have always been of great interest to scientists working in this field. in recent years this interest to evaluate plants possessing antibacterial activity for various diseases is growing (Clark, 1993). In recent years, drug resistance to human pathogenic bacteria and fungi has been commonly reported from all over the world. There fore, the increasing prevalence of multi-drug resistant strains of microorganisms and the recent appearance of strains with reduced susceptibility to antibiotics raises an urgent need to search for new sources of antimicrobial agents (Sieradzki *et al.,* 1999). in present study the various solvent extracts of two aerial parts of *Kedrostis foeditissima* was tested for their antimicrobial efficacy. The results were interpreted.

Herbal extracts exhibit a broad spectrum of anti microbial activity. Extract of *Kedrostis foeditissima* plant extracts possess antifungal, anti bacterial, anti viral and anti protozoa activity. They are also active against insects, pests and mosquito larvae and also exhibit anti cancer effect, hypogly cemic effect and hypo cholesterol anemic effect on non-insulin dependent diabetes millets medicinal plants extracts are now a

days used for nanotechnology for healing wounds.

In the background the present study was screening of anti bacterial activity of plant extract using various micro organisms using Zone of inhibition and Minimum inhibitory concentration (MIC).

## Materials and Method

### Plant material

Fresh leaf and seed of the species *Kedrostis foeditissima*. (Family-Cucurbitaceae) were collected during September 2013 to January 2014 from Northern parts of Chittoor district in Andhra Pradesh, India.

Plant was identified using the Presidency College, Chennai-5, Tamil Nadu, India. The Research and PG Department of Plant biology and plant biotechnology in the plant and thoroughly washed with fresh water and kept for shade dry at soon temperature to get rid of moisture, until further analysis (Fig.1) & Fig.2.

### Preparation of extract

Dried material were powdered units electric blender, at temperature and 5 gm of powdered sample was soaked in 50 ml of different solvents (methanol, Hexare, Chloroform and pet, ether) over night. Later, the samples were filtered under vacuum using whatman No:1 filter paper and stored in air tight Hapentop test tube for further analysis.

### Preparation of inoculums

Five pathogenic organisms were obtained from the microbiology laboratory from the CLRI Adayar, Ch-2, India out of the microorganisms, were bacteria *E.coli*, *Bacillus subtilus*, *Staphylococus*, *Klebsiella*, *Pseudomonas* sps stock culture was maintained at 5°C on slopes of nutrient agar for bacteria Active cultures for further experiments were prepared for petriplates were incubated for 24 hrs at 37+2°C, Muller-Hinton Broth were prepared for staking and fresh slant cultures were prepared and stored in refrigerator at 5°C for future requirements.

### Zone of inhibition

The Bauer Kirby test is a standardized antimicrobial susceptibility procedure in which a culture is inoculated on to the surface of Muller-Hilton Agar. Wells were punched using well culture. Plant compound of different concentration are added to the respective wells. The compounds diffuse into the agar, establishing a concentration gradient, inhibition of microbial growth is indicated by a clear area (zone of inhibition) around the well. The diameter of the zone of inhibition reflects the solubility properties of the plants compound.

### In vitro anti bacterial test MIC – assay

The effect plant compound on bacterial growth were determined using the 96 well plate Hinton broth dilution method. Briefly, bacteria were grown in overnight in standard method Broth, stock solution of plant compound was prepared in diethyl sulfoxide and stored at 20°C. Each stock solution was diluted with SMB to prepare serial two-fold dilution in the range of 1000-0.425 ug/ml. one hundred micro liters of the broth containing about 105 colony forming units (cfu)/ml of test bacteria was added to each well of a 96 well microliters plate. Culture plates were incubated for 24h at 37°C, the growth of microorganisms was determined by adding 10 mil of 0.1% solution of "reassuring" and incubating for further 2

hours. Bio reduction of the dye by viable cells reduces the amount of its oxidized form (blue) and eventually increases the amount of its fluorescent intermediate (red), indicating the degree of cell viability following exposure to the test compounds, compared to the control.

## Result and Discussion

The tested plant extract showed as positive activities against tested bacteria. Thought the response is not uniform. All parts of the plants showed activity one or more bacterial stain used in this assay (Table I)

Anti bacterial potential of extracts were assessed in terms of zone of inhibition. The results of the antibacterial activities are presented as per their measurement of zone of inhibition in millimeter. The activities of the extracts increase linearly into increase in concentration of extracts (mg/ml) as compared with control (Plate.1-4). The results revealed that in the extracts for bacterial activity. The growth of inhibition zone measured rang from 1.1 to 1.8mm for all the sensitive bacteria.

From the results obtained the seed and leaf extracts possess a strong anti efficacy between the leaf and seed, the Seed shows more activity than the leaf. Seed more active chemical components against microbial growth. Hexane extracts shows more effect than the methanol, comparatively the plant sample has potency of controlling bacterial growth.

**Table.1** Antibacterial activity of medicinal plant of *Kedrostis foeditissima* against different organisms

| S.No | Organisms | Leaf | | | | Seed | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Cl** | **Pet** | **Methonol** | **Hexane** | **Cl** | **Pet.** | **Meth** | **Hexane** |
| 1. | *E.coli* | 1.3 mm | 10 mm | 9 | 1.2 | 2.1 | 10 | 1.8 | 9 |
| 2. | *Pseudomonas* | 1.2 mm | 8.1 m | 1.8 | 1.1 | 9 | 11 | 1.1 | 8 |
| 3. | *Staplylococuus* | 1.1 mm | 5.4 | 1.6 | 1.6 | 8 | 9 | 9 | 8 |
| 4. | *Klebsiella* | 1.1 mm | 4 mm | 1.2 | 1.3 | 1 | 10 | 1.4 | 8-1 |
| 5. | *Bacillus* | 1.3 mm | 4 mm | 8 | 9 | 9 | 10 | 8 | 1-6 |

**Table.2** Minimal inhibitory concentrations obtained for *Kedrostis foeditissima* leaf and seed extract

| S.No | Organisms | Leaf | | | | Seed | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. | *E.coli* | 1.1 | 0.8 | 1 | 1.6 | 1.7 | 1.2 | 1.2 | 0.6 |
| 2. | *Pseudomonas* | 1.3 | 1 | 1.4 | 1.2 | 1.5 | 1.0 | 1.3 | 0.9 |
| 3. | *Staplylococuus* | 1.4 | 1.2 | 1.3 | 1.5 | 1.7 | 1.3 | 1.5 | 1.1 |
| 4. | *Klebsiella* | 1.1 | 1 | 1.4 | 2.1 | 2.4 | 1.2 | 1.4 | 1.2 |
| 5. | *Bacillus* | 1.0 | 1.5 | 1.6 | 1.3 | 1.9 | 1.1 | 1.2 | 1.3 |

**Preparation of extract**

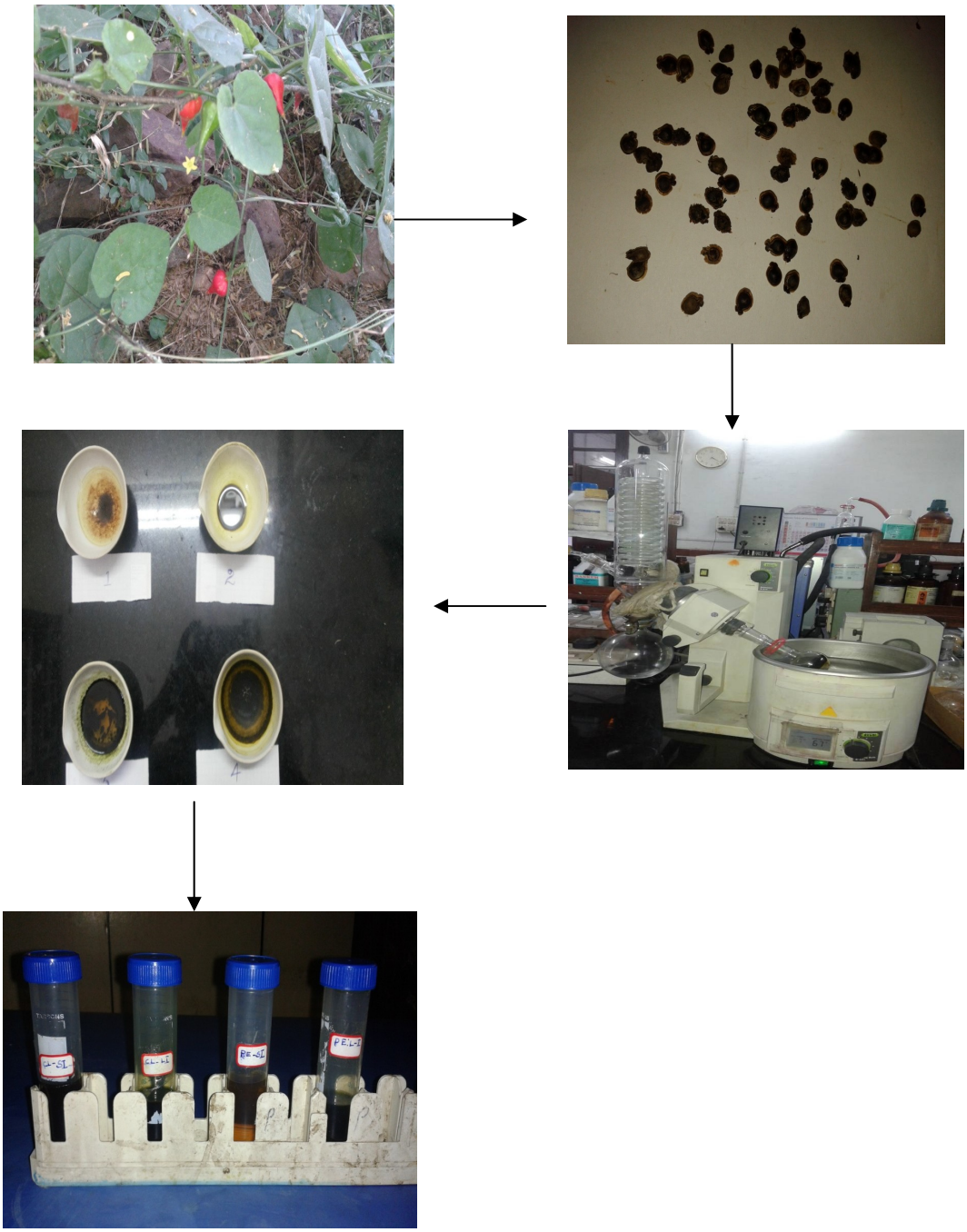
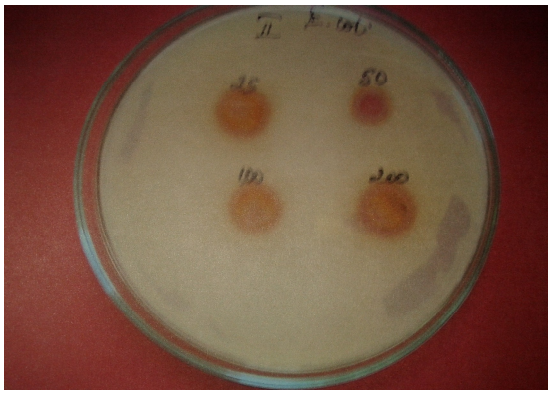
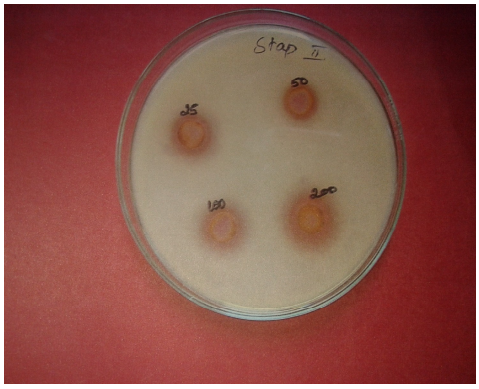


**Plate 1**





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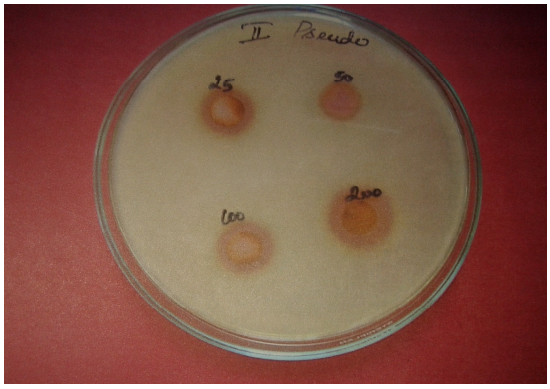

**Plate 3**

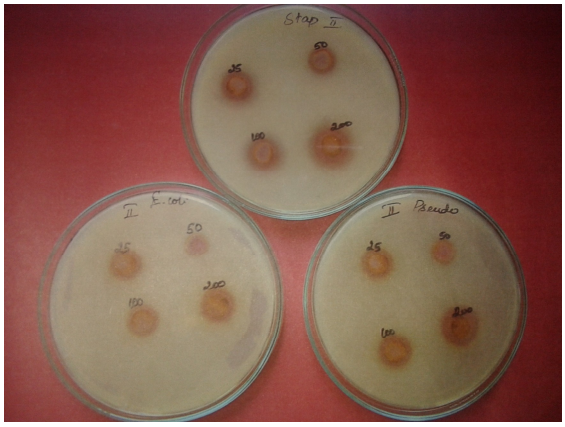

**Plate 4**

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