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Antibacterial Activity of Ocimum Tenuiflorum (TULSI) Plant in Arid Region of Jhunjhunu

IKRAM QURESHI , ARUN KUMAR, OMPRAKASH CHAHAR, G M KACHHAWA
Shri Jagdishprasad Jhabarmal Tibrewala University
Jhunjhunu, Rajasthan

ABSTRACT:
Tulsi plant is also known as Ocimum tenuiflorum.it is belonging to family Lamiaceae and class Magnoliopsida. Tulsi is the Queen of herbs. These plant checking the quality of these medicinal plants we have to determine the various biochemical tests, for its merits and demerits.
Keywords- Ocimum tenuiflorum,, Lamiaceae and Magnoliopsida

INTRODUCTION:

Tulsi plant is also known as Ocimum tenuiflorum.it is belonging to family Lamiaceae and class Magnoliopsida. Tulsi has been used for thousands of years in Ayurveda for its diverse healing properties. Tulsi is the Queen of herbs, the legendary 'Incomparable one' of India, is one of the holiest and most cherished of the many healing and healthy giving herbs of the orient. Tulsi is an erect, much branched sub-shrub 30-60 cm tall, with simple opposite green or purple leaves. The name 'Tulsi in Sanskrit means 'the incomparable one'. In India two forms of Tulsi are more common - dark or Shyama (Krishna) Tulsi and light or Rama Tulsi. The former possesses greater medicinal value and is commonly used for worship. Various other species are also commonly found in India like O. canum, O. basilicum, O. kilimandscharicum, O. ammericanum, O. camphora and O. micranthum. The presence of a Tulsi plant symbolizes the religious bend of a Hindu family. The medicinal plants are widely used by the traditional medical practitioners for curing various diseases in their day to day practice. In traditional systems of medicine, different parts (leaves, stem, flower, root, seeds and even whole plant) of Tulsi, small herb seen throughout India, have been recommended for the treatment of bronchitis, bronchial asthma, malaria, diarrhea, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever, insect bite etc(Ahmed M et al.2002, Banerjee, S.et al, 1996, Bansod S.et al 2008, Bhargava K P.et al,1981 and Chattopadhyay RR et al, 1993).

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Lamiales
Family: Lamiaceae
Genus: Ocimum
Species: O.tenuiflorum
Botanical name: Ocimum tenuiflorum

MATERIAL AND METHODS:

PLANT MATERIAL:

Mature and healthy leaves of Ocimum tenuiflorum (Tulsi) were collected from the Shri JJT University Jhunjhunu Rajasthan during July 2015. Plant samples were collected for the antibacterial experiments.

COLLECTION OF PLANT SAMPLE AND ITS IDENTIFICATION:

Ocimum tenuiflorum (Tulsi) plant was collected from July, 2015 from different Ocimum tenuiflorum(Tulsi) growing areas of Rajasthan. Ocimum tenuiflorum (Tulsi) was collected from Shekhawati region particularly- JJT University, Jhunjhunu Rajasthan (India).

The bark samples were removed use sharp knife and store in clean polythene bags. Every sample was used for the experiment. Sample was stored in freeze for further use. These medicinal plants identify by botanist Dr. G. M. Kacchawa, shri JJT University, Rajasthan (India).

CHEMICALS AND REAGENTS:

Glassware, Nutrient agar media, Distilled water Amoxicillin disc, Penicillin disc, were purchased from Merck Specialties private limited, Mumbai, India.

PROCESSING OF THE PLANT:

For the experiments, fresh plant leaves of Ocimum tenuiflorum (Tulsi) were collected from field in polybages with ice packs. These fresh leaves were with tap water and than double distilled water for thrice. The leaves were dried and then grinded into powder form and mixed with distilled water (05 gm of extract in 50 ml of distilled water). The extract was kept under rotary evaporator which was used to dry and concerted, after that these samples were which is kept in air tight container and stored under lower temperature.

TEST MICROORGANISM:

The Ocimum tenuiflorum (Tulsi) extract was used for testing anti microbial assay and some bacterial strains were used, these were also: Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, and Bacillus cereus. Microbial cultures were grown on nutrient agar for bacteria and cultures were maintained at 3.5°C in refrigerator.

ANTIBACTERIAL ASSAY:

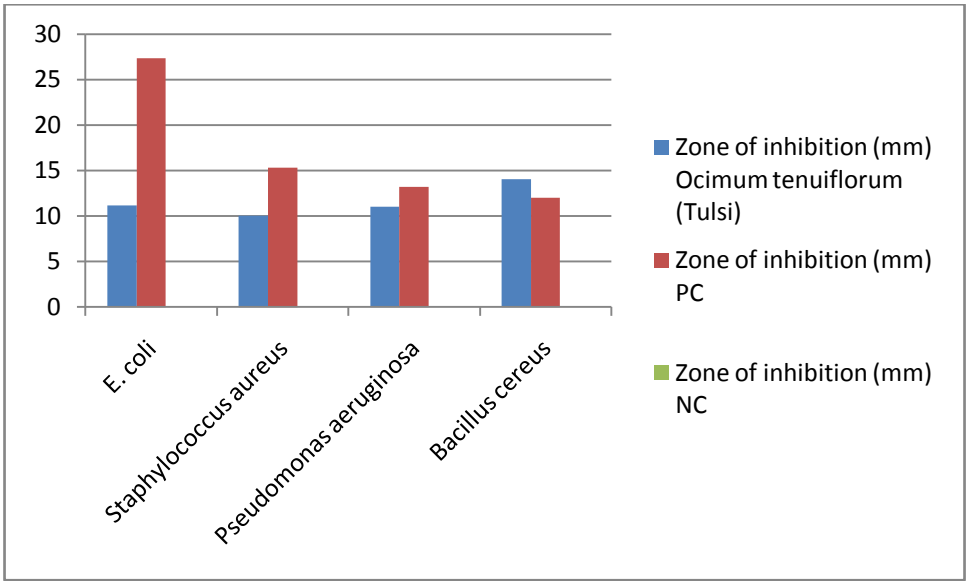
Plant crude extract was prepared for the checking of antibacterial activity against various bacterial strains by the agar well diffusion method (Qureshi et al.2014 and Qureshi et al.2015,). For the antibacterial activity all test organisms were inoculated on MHB for 8 hours. Selected organisms were seeded on MHA plates with the help of sterile cotton swabs. Wells were prepared with help of sterilized gel borer on agar surface (6 mm diameter). 100 µl of sterilized distilled water (negative control) and 100 µl of the test extract were poured in to separate wells. For the test of positive control, various antibiotics (slandered) were placed with plant extract on the agar surface. These cultured Petri plates were put for one to two days (24-48 hours) into incubator at 37^0C. All these method were performed in triplicates.

Result: -

Antibacterial activity of aqueous extract of Ocimum teuiflorum

Test Organism	Zone of inhibition (mm)		
	Ocimum tenuiflorum (Tulsi)	PC	NC
E. coli	11.2±2.32	27.3±1.32	0±0
Staphylococcus aureus	10.05±1.63	15.3±1.27	0±0
Pseudomonas aeruginosa	11.0±1.05	13.2±0.6	0±0
Bacillus cereus	14.03±1.38	12.0±1.1	0±0

Note: - PC (Positive control), NC (Negative Control), Value is express mean ± Standard deviation of the three replicate, Zone of inhibition not include the diameter of the well.



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