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Antibacterial Activity on the extract of Quisqualis indica linn, flower Oil

B Siva Prasad[1] ,K. Gangi Naidu[2], V. Sudhkar Reddy[3], Asst.Proff .Dr .J.Kamakshamma

[1,2]Depertement of Botany S.V University Tirupathi A. P India.

[3] Depertement of Chemistry S.VUniversity Tirupathi. A.P India

ABSTRACT :

The present study aims to provide information cocerning the Anti-bacterial activity of Quisqualis indica Linn , a plant with in the Quisqualis genus, know for its woody climbers found in tropical Africa and the Indo-Malaysian region . Botanically named Quisqualis indica (Cobretum indicum) and belonging to the combretaceae family ,

Agar well diffusion assay was performed to determine antibacterial activity mong extracts, the flower extract has shown marked inhibition of Bacillus species isolates. It can be concluded that the flower extracts possess inhibitory components. The bioactive components present in the plant are to be separated and subjected for antibacterial activity.

KEYWORDS : Quisqualis indica Linn , Flower oil., Anti-bacterial Activity , Well diffusion method , Bacillus sps .,

1. INTRODUCTION :

Quaisqualis indica ,. Commonly known as Rangoon creeper is a exlecent wine for outdoor gardens belonging to the family of Combretaceae. Some medicinal properties of Quaisqualis indica Linn ,. Has been domonstrated in Ayurveda ,. Siddha . Unnani . and other medicinal systems . (Sahu et al . 2012),

Bacillus sps is a gram positive bacteria , they cause the pathogenic like Bacillus anthracis (Anthrax) , Bacillus cereus , Bacillus substills used as probiotics offering potential health benefits . (KV RAMI REDDY et al .,2017)

Bacillus subtilis was a gram positive, rod shaped, endospore forming catalasepositive bacterium commonly found in soil (Madigan and Mortinko, 2005). Bacillus subtilis contaminate food and causes food poisoning (Ryan and Ray, 2004). It causes conjunctivitis followed by irridocheroiditis (Greenwood

et al., 1997).(KV RAMI REDDY et al .,2017)

Plant profile :

Botanical Name : Quisqualis indica linn,.

Common Names : Rongoon creeper ,Drunken sailor , Akar dani, Akhar suloh , Dhani , Ara dhani , Akar pontianak

,Red jasmine .

Varnacular Names : English Rangoon creeper ,Hindi:Madumalathi Marathi: Rangoonvel,Vilayati Chameli ; Gujarathi : Baramasivel ; Bengali : Malathi , Madumalathi ; Telugu ; Radhamanoharam ; Manipuri : Parijit ,

Scientific classification ;

Kingdom : Plantae

Division : Mangoilophyta

Class : Magoliopsida

Order : Myrtales

Family : Combretaceae

Genus : Quisqualis

Species : indica

Fig 1 ; Flower

Fig 2 : Habitat of plant

Material And Methods

Collection of Plant Meterials

Fresh flowers of Quisqualis indicaLinn., were collected from botanical garden Dept , of Botany S. V University , Tirupathi . The flowers were identified and authinicated by Proff. N .Savithramma, Proffessor , Dept .Of Botany,S.V University, Tirupathi ,

Preparation of Oil Extract :

Fresh flowers of Quisqualis indica were collected washed with alchol and subjected to maceration using olive oil for 30 days .Further it was extracted using filter paper and subjected. Antibacterial activity followed by the well diffusion method

Antimicrobial activity of Oil Extract

Cultures

The microbial cultures were procured from the Department of Applied microbiology, Sri Padmavathi Mahila Visvavidyalayam (SPMVV) and Sri Venkateswara Institute of Medical Science (SVIMS), Tirupati. One bacterial strains including Bacillus subtilis aeruginosa which is multidrug resistant strains were maintained on nutrient agar slants at 40C.

Bacterial cultures :

Bacillus subtilis ;

Bacillus subtilis was a gram positive, rod shaped, endospore forming catalase positive bacterium commonly found in soil (Madigan and Mortinko, 2005). Bacillus subtilis contaminate food and causes food poisoning (Ryan and Ray, 2004). It causes conjunctivitis followed by irridocheroiditis (Greenwood et al., 1997).

Preaparation of the medium

Nutrient Agar media (pH 7.0)

For the preparation of 1 litre of Nutrient Agar media ingredients like 1.5 g of beef extract, 1.5 g of yeast extract, 5 g of peptic digest of animal tissue and 5 g of sodium chloride were weighed and added in 500 ml of distilled water and heated with agitation to dissolve the constituents. Finally, the volumes were made upto 1 litre. Before the addition of agar (15 g) the pH of the medium was adjusted to 7.0 by adding few drops of 0.1 N NaOH or HCl using digital pH meter (Elico Pvt. Ltd., Hyderabad). These were then sterilized by autoclaving at 15 lbs pressure at 1200C for 15 min; cooled to 400C and approximately 20 ml of medium was poured to each 90 mm steriled petridish.

Preparation of inoculum

Bacteria:

18 hrs old bacterial broth cultures was used as inoculam after adjusting its population to 106 CFU/ml (Colony Forming Units) using 0.9% (w/v) sterile saline by the method described by (Forbes et al. (1990).

Antibacterial Assays by well method The antibacterial activity of isolated plant extract was tested by standard well method. The tested bacteria were maintained on nutrient agar (Hi- media) slants. A loopful of culture from the slant was inoculated into the nutrient agar broth and incubated at 370C for 24 hrs and 0.1 ml of this culture evenly spread on the nutrient agar plate. Steriled discs of Whatman No.1 filter paper of about 6 mm diameter were placed on the surface of the media (Bauer et al., 1966). Using steriled micropipette 20 □l (0.02 ml) of the sample of extract was applied on the discs and incubated at 35^{o}C for 24 hrs for bacteria.

2. Result and Discussion ;

Fig : 3 Bacillus subtilis

The findings were interpreted through the measurement for the diameter of the growth- inhibitory zone (clear zones), while the extract of the examined plant demonstrated varied degrees of inhibition action against the Bacillus sp. The findings un mistakably demonstrated that the studied bacteria were vulnerable to an increase in plant extract concentration. The mean width of the inhibitory zone varied significantly depending on the concentration of plant

extract. Despite being less active than tetracycline (22 mm), 75 mg of plant extract

demonstrated significant activity (14 mm) and mild activity (4 and 2 mm, respectively)

Summary and conclusion ;

- Oil Extract of Quisqualis indica . has been proved to be a bioactive antibacterial agent. Isolation of individual compounds and their biological activities required to be uncovered to enhance its pharmacological importance in the field of research.
- In the present study the flower Quisqualis indica. extract is the maximum inhibitory activity against all organisms studied even in very low concentrations. indicated that this flower contain enormous antimicrobial inclusions than the other flower studied. In the present study only crude extracts are used and hence further investigation and identification of components are needed
- Nowadays, the human population depends on herbals to cure the diseases and to choose the herbal medicine for primary action just because of low side effects. Quisqualis indica Linn ., is a beautiful ornamental plant but has lots of pharmacological activity and found to be safe at various level of research.
- In the above study, the crude flower extracts of Quisqualis indica. showed remarkable antibacterial activity against tested gram-positive (Bacilluss subtilis) antibacterial activities of the flower extracts tested in this study may help to discover new chemical classes of antibiotic substances. The evolution of natural antimicrobial agents will help to diminish the negative effects like pollution in the environment, resistance, etc., of synthetic chemicals as well as drugs. It can truly contribute to medical and pharmaceutical practices, yet, there are many more activities waiting for screening the drugs. Further research has to be conducted on the activity of the extracts against a wider range of bacteria and fungi

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