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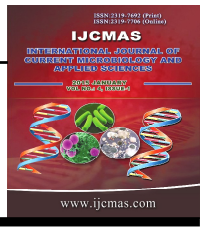

Original Research Article

Antimicrobial Activity of *Cestrum aurantiacum* L.

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A B S T R A C T

Antimicrobial studies were conducted in the *Cestrum aurentiacum* which is commonly called orange Cestrum, an exotic plant common in the Nilgiris. The plant material was collected fresh from the Nilgiris and the root, the leaf and the flower were separated. All these plant materials were dried at 37^{o}C and extracted in ethyl alcohol. Antimicrobial activity of the extract was carried out against *Kliebsella, Proteus, Staphylococcus, E. coli,* & *Pseudomonas*. Among the extract of various plant parts, the flower extract shows maximum antimicrobial activity. The report that the *Cestrum aurentiacum* can be used as an antimicrobial agent is a new one. The active principle behind this may be alkaloid or saponin, but to prove this, more study has to be conducted.

Keywords

Cestrum, Antimicrobial activity, Proteus, Pseudomonas

Introduction

Cestrum aurantiacum L. (*Capraria lanceolata*), also called orange Cestrum, orange Jessamine, orange flowering Jessamine and yellow Cestrum) is an invasive species native to North and South America belongs to Solanacea family. Today it is a very common shrub seen in all parts of the Hill district of the Nilgiris in Tamilnadu. It is a half climbing glabrous shrub with leaves ovate or oval with 3-4 inch long and 1.75-2.5 inch broad. It is short pointed and not very acute, often somewhat undulate. Flowers 2-5 together, sessile, and combined in a terminal panicle, corolla orange to yellow and 0.75 to 1inch long, the large acutish lober strongly reflexed. It is claimed to be a poisonous plant and all the plant part if ingested is considered to be poisonous. However, it attracts a lot of bees, birds etc. The studies in the related species *C. paraquai* shows it contain two alkaloids, parquine and solasonine (Silva et al, 1962). Similar type of study from the Egypt analyzed the alkaloid, saponins, lipids and tri terpernoids of the species (Rashed, 2013). Begum and Goyal (2007) suggests that *Cestrum* may have antimicrobial and anti-inflamatory properties. The present study was under taken to explore the antimicrobial activity of the secondary metabolites against major pathogens.

Materials and Methods

The plants were surveyed and collected from the field, for the taxonomic analysis herbarium was prepared and authenticated with the herbarium available in the department of Botany, Government Arts College, Udhagamandalam. The plant parts were washed and separated, into root, leaf and the flower and dried at 37^{o}C in an electric oven. The dried plant materials were powered using a mixer into fine granules and dissolved in ethyl alcohol. This was kept as such for 45 days in dark in order to achieve complete extraction. Microbiological cultures was carried in commercially available petri-plates of nutrient agar High media. Once the growth medium in the Petri dish is inoculated with the desired bacteria, the plates are incubated in an oven set at 37^{o}C. Pure strains of *Klebsiella, Staphylococcus aureus, E.coli, Pseudomonas* and *Proteus* strains were used to inoculate the petri-plate

The four plant extracts viz., leaf, root , stem and flower along with control (Solvent) were applied into a drug disc and applied in the bacterial culture medium. All the inoculation was done in perfect sterile condition and incubated at 37^{o}C for one day. The formation of clear zone was around the disc was considered to an indication of antimicrobial activity.

Results and Discussion

The result shows that leaf, stem and root do not show any antimicrobial activity against *Klebsiella, Staphylococcus aureus, E.coli, Pseudomonas* and *Proteus*. However, the flowers (Plate 1) extract shows anti microbial activity against *E.coli, Pseudomonas* and *Proteus* (Plate 2 to 4) but not against *Klebsiella* and *Staphylococcus aureus*. Nature is a source of a variety of medicinal agents and an impressive number of modern drugs have been isolated from plants. Bioactive molecules from plants has been purified and developed as potential drugs, which plays an important role in human health care (Farombi, 2003). Over 50% of all modern clinical drugs are of natural product origin (Stuffness & Douros, 1982) and natural products play an important role in drug development programs in the pharmaceutical industry (Baker et al, 1995).

The effects of plant extracts on bacteria have been studied by a very large number of researchers in different parts of the world (Reddy et al,2004; Al-Zoreky, 2009). Much work has been done on ethno-medicinal plants in India (Valsaraj et al, 1997; Duraipandiyan et al, 2006). Interest in a large number of traditional natural products has increased (Dewick, 2002). It has been suggested that aqueous and ethanol extracts from plants used in allopathic medicine are potential sources of antiviral, antitumor and antimicrobial agents (Costa-Lotufo et al, 2005; Nair et al, 2008). The selection of crude plant extracts for screening programs has the potential of being more successful in initial steps than the screening of pure compounds isolated from natural products (Rojas et al, 1992).

The report that the Cestrum aurentiacum flower can be used as an antimicrobial agent is a new one and the active principle behind this has to be discovered. The active principle can be alkaloid or saponin or any other bio-molecule, but to prove this more study have to be conducted.

Plate.1 Cestrum flower

Plate.2 Antimicrobial activity of flower extract against *E. coli*

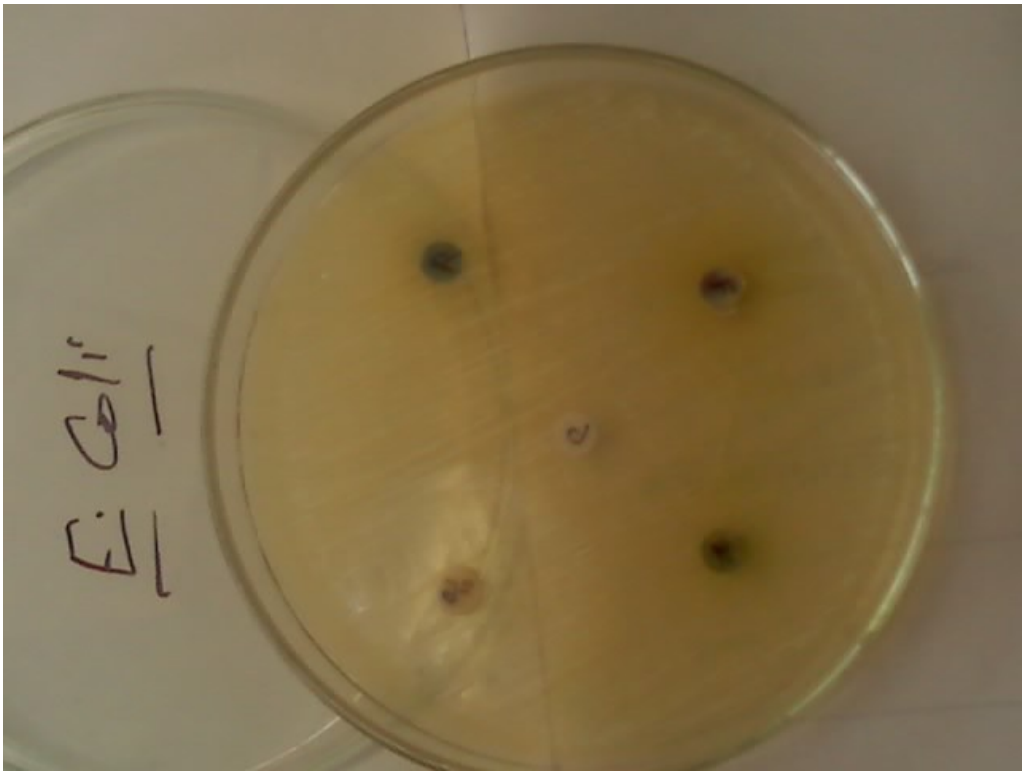


Plate.3 Antimicrobial activity of flower extract against *Proteus*

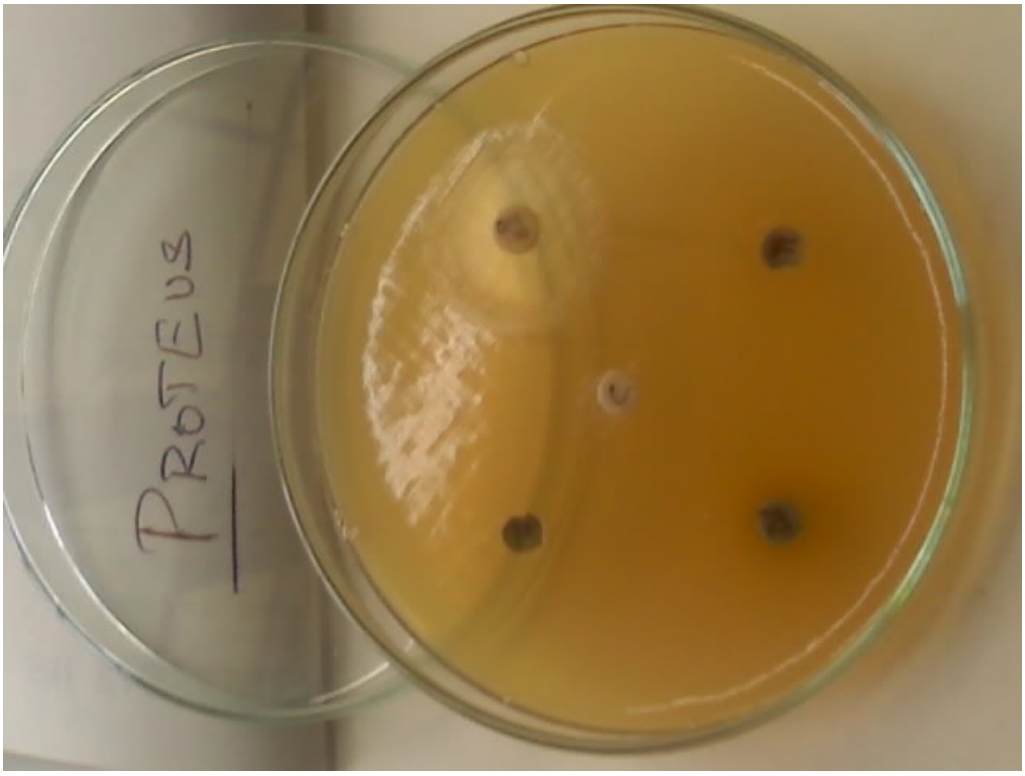
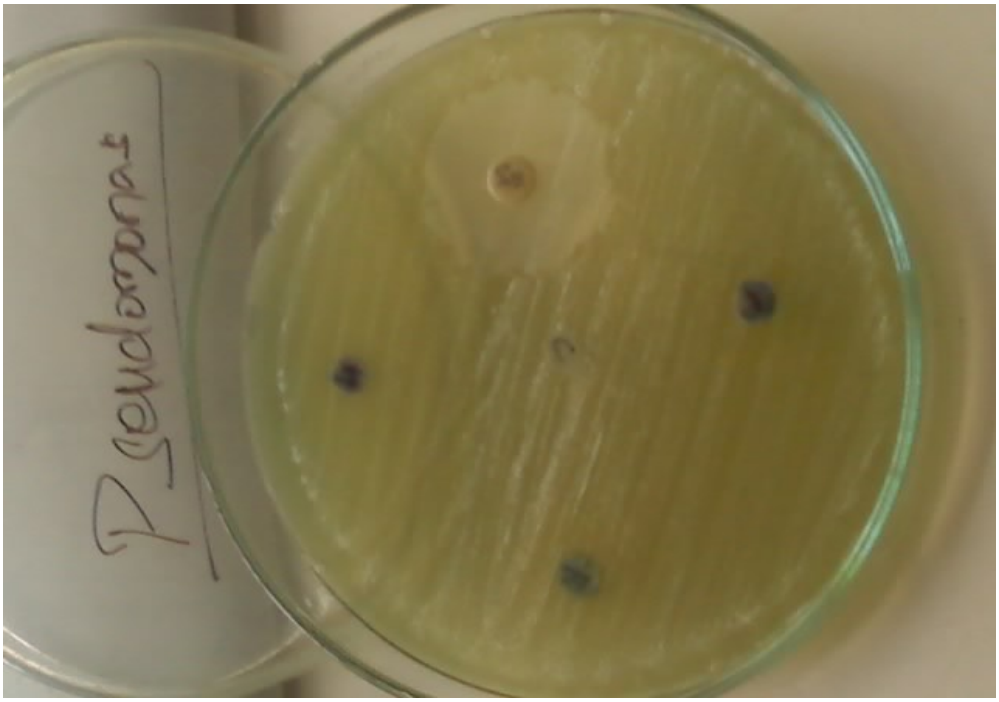


Plate.4 Antimicrobial activity of flower extract against *Pseudomonas*



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