

Antimicrobial activity of *Melia dubia* leaf volatile oil and camphene compound against skin pathogens

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SUMMARY

The chemical constituents of *Melia dubia* leaf volatile oil have been studied by GC-MS. The chemical compound "monoterpene camphene" shows the good antimicrobial activity that inhibits 78% of skin isolates at 250ml concentration, whereas the *Melia dubia* leaf volatile oil that contains 21.68% of camphene as a major constituent, inhibits 88% of skin pathogens.

Key words : *Melia dubia*, Volatile oil, Camphene, Skin disease pathogens.

Meliaceae, a versatile family of great importance in bioorganic research, comprising 17 general and 72 species, found only in moist and tropical forests of hilly areas in eastern and western ghats, of which approximately 18% are endemic to peninsular India. The family Meliaceae was intensively studied for plant chemical constituents and its medicinal values. The tree *Melia dubia*, belongs to the family Meliaceae. The tree *Melia dubia* is a wild relative of *Azadirachta indica* (Vardharajan, 1985). The pulp of the *Melia dubia* fruit is a favourite remedy for colic and is said to relieve pain most effectively among the labouring classes. It also acts as an antihelminthic. The fruit of the tree was used to cure sores and scabies.

The present study is to evaluate the antimicrobial efficacy of *Melia dubia* leaf volatile oil and Camphene compound that acts against skin pathogens, isolated from patients of relevant diseases namely Candidiasis and Tinea pedis.

MATERIALS AND METHODS

Plant material :

Leaves of *Melia dubia* were collected from the moist deciduous forests in Rollapenta of Kurnool district, Andhra Pradesh, India, and Taxonomy expert Department of Botany, SKU, Anantapur, checked the authentication. Voucher specimens were preserved in S.K.University herbarium.

Oil preparation:

The *Melia dubia* leaves were subjected to hydrodistillation in clevenger apparatus for 5 hours. The oil was stored in brown bottles for further analysis (Haborne, 1984).

GC-MS studies:

The chemical composition of volatile oil was determined by GC-MS studies performed on a Shimadzu GC-MS-QP5050 A (quadruple)(Japan), equipped with EI (Adams, 1989).

Compounds for the Test:

Camphene was a monoterpene compound selected and purchased from Sigma chemicals, Hyderabad, India.

Microorganisms:

50 Clinical isolates of Skin diseased organisms were collected from Govt. Medical College, Anantapur, India. Among 50 clinical isolates, 12 isolates of *Candida albicans* were collected from Candidiasis diseased patients, 15 isolates of *T.mentagrophytes* were collected from the sufferers of Tinea pedis and the bacteria ones viz 10 isolates of *Staphylococcus aureus* and 13 isolates of *Pseudomonas aeruginosa* were collected from Skin secondary infection of the above diseases. An experienced medical officer in the field identified the pathogens using standard procedures (Rebell and Taplin, 1970). Sabouraud's dextrose agar medium for fungi and Nutrient agar medium for bacteria at 25°C-37°C were used to maintain the isolates.

Antimicrobial assay:

The susceptibility test was performed as described by Caceres *et al.* (1993) and Irobi and Darambola (1993) with the following modifications. The oil was solubilized in DMSO and two-fold serial dilution was performed in Muller Hinton agar to obtain the concentration range of 7.8-250ml/ml, and the same was poured in to Petriplates. Wells of 3mm were opened using a steer's inoculator's.

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