



ANTIDERMATOPHYTIC ACTIVITY OF *DIOSPYROS CHLOROXYLON* LEAVES: USING TWO IMPORTANT SOLVENT EXTRACTS

P. SHIVAKUMAR SINGH¹ AND G.M. VIDYASAGAR^{2*}

¹Department of Botany, Plamuru University, Mahabubnagar-509001, Telangana, India.

²Medicinal Plants and Microbiology Research Laboratory Department of Post- Graduate Studies and Research in Botany Gulbarga University, Gulbarga – 585 106, Karnataka, India.

*Corresponding author: gm.vidyasagar@rediffmail.com

ABSTRACT: The important medicinal plant *Diospyros chloroxylon* was pharmacologically authenticated using agar well diffusion technique against dermatophytic fungi *Trichophyton rubrum*, *Microsporum gypseum*, *Candida albicans*, *Trichophyton tonsurans*, *Trichophyton mentagrophytes* and bacteria, *Escherichia coli*, *Pseudomonas aeruginosa*, *Bacillus subtilis* and *Staphylococcus aureus*. Leaves were extracted using two diverse solvents like petroleum ether and methanol. Phytochemical screening of these extracts was carried out for the detection of secondary metabolites constituents such as alkaloids, flavonoids, tannins, saponins and glycosides. Among two extracts, the petroleum extract showed more antidermatophytic activity and moderate activity recorded with methanolic extract. All the dermatophytes were more liable to petroleum ether extracts than the methanolic extract. The effective petroleum ether leaf extracts selected for minimum inhibitory concentrations (MIC), minimum fungicidal concentration (MFC) and minimum bactericidal concentration (MBC) determination using broth dilution method. In outlook this plant extracts can be subjected to isolation and purification of the antidermatophytic targeted constituent and to promote pharmacological assessment.

Keywords: Antimicrobial activity, petroleum ether extract, *Diospyros chloroxylon*, MIC, MFC, MBC.

Citation: Shivkumar Singh P, Vidyasagar GM (2016) Antidermatophytic activity of *Diospyros chloroxylon* leaves: using two important solvent extracts. Indian J Trop Biodiv 24(2): 144-150

Received on : 15 Jul. 2016

Accepted on : 16 Oct. 2016

Published on : 30 Dec. 2016

The exploitation of therapeutic plants to use in curing human diseases has been deep rooted from pre-historical times. Ethno medicinal plants are used by 80% of the world population as the only available medicines especially in developing countries (Hashim et al. 2010). Plants used for traditional medicine contain a wide range of substances that can be used to treat chronic as well as transmittable skin diseases. Clinical microbiologists have huge curiosity in screening of medicinal plants for antimicrobial activities and phytochemicals like secondary metabolites as potential new therapeutics. The dynamic ideology of numerous drugs establish in plants are secondary metabolites (Cragg and Newman 2001, Onakoya 2006). In India with about 45,000 plant species and 550 tribal communities belonging to 227 ethnic groups (Ministry of Environment and Forest, report 2000) are using habitually. In current times, the quick expansion of multi resistant antifungal strains of clinically important pathogens fetches the interest of scientist to develop newer broad spectrum antimicrobial agents 1. The less

accessibility and high cost of new generation antibiotics necessitates looking for the substances from alternative medicines with claimed antimicrobial activity. A number of traditional medicinal plants with significant antimicrobial activity have been reported (Balandrin et al. 1985, Jones 1996, Weisser et al. 1996).

The Hyderabad Karnataka region comprises four districts namely, Bidar, Gulbarga, Raichur, and Yadgir located in the northern part of Karnataka, India. This region is economically little backward, but culturally unique. People speak five languages such as, Kannada, Marathi, Telugu, Hindi and Urdu and knowledge flows from one culture to other. The plant diversity is very prosperous and an excellent quantity of medicinal plants are used in the treatment of various diseases including skin diseases (Vidyasagar and Shivakumar Singh 2013).

A potential traditional medicinal plant *Diospyros chloroxylon* Roxb. belongs to Ebenaceae family, commonly called as Ninnai, Nensi in the study area. The leaves are used to cure many types of ailments includes boils, body pains, swellings, skin diseases etc. (Reddy