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Bioactive metabolites from ethyl acetate extract of leaves of *Melia dubia* L., against human and plant microbial pathogens

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Abstract
Antimicrobial metabolites are screening from medicinal plants is a promising technique to combat the growing issue of drug-resistant infections in humans and plants. In the present study, antimicrobial activity of *Melia dubia* L., was tested against human and plant pathogenic microbes by well diffusion method. Among three solvent system, ethyl acetate extract of *M. dubia* was showed significant activity towards human and plant pathogens such as *Escherichia coli* MTCC443, *Salmonella typhi* MTCC733, *Bacillus cereus* MTCC 430, *Staphylococcus epidermidis* MTCC 10623, *Klebseilla* sp. MTCC 3384, *Rhizoctonia solani*, *Macrophomina phaseolina*, *Sclerotium rolfsii* and *Fusarium oxysporum* with different level of zone of inhibition (ZOI) from 2 mm to 15 mm and 5 mm to 27 compared to control. The maximum quantity of phytochemical constituents like tannins, total phenol, flavonoids, saponins and alkaloids were obtained from ethyl acetate extract of *M. dubia* in comparison with other two solvent system such as acetone and petroleum ether. From ethyl acetate extracts of *M. dubia*, four spots of biomolecules with Rf values of 0.46, 0.41, 0.32 and 0.18 were detected on thin layer chromatography (TLC). Bioactive compounds are now undergoing purification and characterisation from *M. dubia*.

Keywords: *M. dubia* L, phytochemical constituents, bioactive compounds. TLC and antimicrobial activity

Introduction
The herb *Melia dubia* L., also known as Hill Neem, Malai Vembu, Munnattikaraka, and it would be used as an andithelmentic, as well as for gastrointestinal and colic diseases (Saini *et al*., 2007) [29]. Chemical pesticides', antibiotics and fungicides are cause severe threat to the human being and affect the plant health. Problem of drug-resistant microbes, have spurred to scientists to explore for more effective and environmentally benign alternatives in recent years (Aktar *et al*., 2009; Akacha *et al*., 2016) [2, 1]. In truth, microbial resistance is becoming a bigger issue, and the future of antimicrobial drug use is still up in the air. Furthermore, due to the many adverse effects of anti-inflammatory medicines, treating chronic inflammatory illnesses is challenging and impacts for humans (Nascimento *et al*., 2000; Li *et al*., 2003) [21, 16]. Infectious disease is the major cause of death in underdeveloped countries, accounting for over half of all deaths (Murtaza *et al*., 2015) [19]. Plants are a major source of raw materials for medicines, which are used to treat a wide range of human ailments. Because of their compatibility with our biological system, natural-source medications have captivated the interest of modern civilization (Amalraj, 1983; Paritala *et al*., 2014) [3, 23]. Scientific study on medicinal plants is centered on the discovery of active principles in plants, as well as a scientific examination of remedies that leads to product standardization and quality control to assure product safety. After passing specific tests, they may be approved for use in primary health care. In this case, previous research initiatives may have resulted in the development of new medications. (Farnsworth, 1988; Paritala *et al*., 2014; Goswami *et al*., 2020) [8, 23, 10].
Antibiotic-resistant bacteria are becoming more common, and synthetic treatments may have negative side effects (Priya *et al*., 2020) [25]. In order to find novel sources of plant medications, several plants have been investigated for a wide range of biological activity in various research organizations. Because, they have so much therapeutic potential (Sandhya *et al*., 2006; Paritala *et al*., 2014), plant-based antibacterial activity represents a significant