
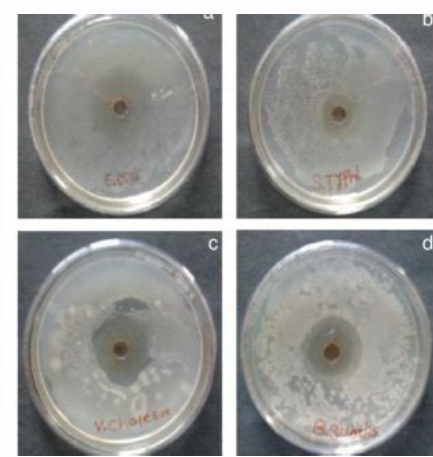


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RESEARCH ARTICLE Antimicrobial activity of Azadirachta indica (Neem) against Pathogenic Microorganisms

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Abstract Plants have been a source of herbal remedies throughout the history of mankind. Various medicinal plants have been used for years in daily life to treat diseases all over the world. In the present study, antimicrobial activity of Azadirachta indica was evaluated against gram negative pathogenic bacteria (Escherichia coli, Salmonella typhi and Vibrio cholerae) and gram positive bacteria (Bacillus subtilis). Azadirachta indica leaves and barks were collected from the fields of Botanical Garden in Padmaiah Vihare Pall College, Pravaranagar and pure cultures of the test organisms used for antimicrobial study were obtained from the Dept. of Microbiology, Pravara Institute of Medical Sciences, Loni. All the test organisms were screened for their antibacterial activity against leaf and bark extract of A. indica by agar well diffusion method. Leaf and bark extract of Azadirachta indica showed more inhibition zone against Vibrio cholerae and Bacillus subtilis, while E. coli and S. typhi are less susceptible to neem extract.

Keywords: Antimicrobial activity, Azadirachta indica, pathogenic bacteria, leaf and bark extract.

Introduction Neem is used in traditional medicine as a source of many therapeutic agents in the Indian culture and grows well in the tropical countries. Its twigs provide a chewing stick and are widely used in the Indian sub-continent. Earlier studies on neem have shown that it contains active substances with multiple medicinal properties (Manjapparavalli et al., 2012). Aqueous extract of neem leaf has a good therapeutic potential as antihyperglycemic agent in IDDM and NIDDM (Mossadek and Rashid, 2008; Patel et al., 2013). Neem leaves has antibacterial properties and could be used for controlling airborne bacterial contamination in the residential premises (Saseed and Aslam, 2008; El-Mahmoud et al., 2010). Administration of alcoholic extract of neem flower disrupts the estrous cycle in Sprague Dawley rats and causes a partial block in ovulation and has the potential of an ideal antifertility agent (Zoboloun et al., 2008). The popularity of the plant products is increasing because of their biodegradability, least persistence and least toxic to non-target organisms, economic and easy availability. Today about 200 plants with insecticidal activities are known. Among the natural products, one of the most promising natural compounds is Azadirachtin, an active compound extracted from the Azadirachta indica A. Juss (neem) tree (Meliaceae) (Fig. 1) whose antifungal, antifungal, antibacterial and insecticidal properties have been known for several years. Chemical investigation on the products of the neem tree was extensively undertaken in the middle of the isolation of nimbin, the first bitter compound isolated from neem oil, more than 135 compounds have been isolated from different parts

of neem (Ganguli, 2002). Neem elaborates a vast array of biologically active compounds that are chemically diverse and structurally complex. Medicinal properties of the plant Azadirachta indica were studied by several workers. They were anti-synergic (Ojapany and Ezeukwu, 1981; Khattak et al., 1985), anti-malarial and anti-tumour effect (Fujisawa et al., 1982), anti-ulcer effect (Pillai and Sarthakumar, 1984), anti-diabetic effect (Patel et al., 2013), anti-fertility effect (Sinha et al., 1984), effect on central nervous system and antioxidant activity (Bandyopadhyay et al., 2002).

Fig. 1. Azadirachta indica (Neem tree)



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