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A review: Antimicrobial activity of *Azadirachta indica* (Neem)

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Abstract

Screening of medicinal plants for bioactive compounds leads to development of less expensive new antimicrobial agents with improved safety and efficacy. *Azadirachta Indica* (neem) is a multipurpose tree with multiple health benefits. Antimicrobial activity in leaf extract of neem (Azadirachta indica) against endodontic bacteria. E.coli, Staphylococcus aureus, Pseudomonas aeruginosa , Streptococcus mutans and Enterococcus faecalis,. Antimicrobial activities of alcoholic extracts of neem leaves were used. Varying concentration of each extracts 200mg/ml, 150 mg/ml, 100mg/ml, 50mg/ml, 25mg/ml prepared by using disc diffusion method. When compared with gentamycin 200mg and gentamycin 10mg, the methanol and ethanol extract shows maximum inhibition on Pseudomonas aeruginosa and Staphylococcus aureus in an asending order.

Key words: *Azaridichta indica*, E. coli, Staphylococcus aureus, Pseudomonas aeruginosa.

Introduction

Historically, plants have provided a source of inspiration for novel drug compounds, as plant derived medicines which have made large contributions to human health and well-being. Neem (Azadirachta indica) commonly called 'India Lilac' or 'Margosa', belongs to the family Meliaceae, subfamily Meloideae and tribe Melieae[1-4]. Neem is the most versatile, multifarious trees of tropics, with immense potential. It possesses maximum useful non-wood products (leaves, bark, flowers, fruits, seed, gum, oil and neem cake) than any other tree species. Various parts of the neem tree have been used as traditional Ayurvedic medicine in India. Neem oil and the bark and leaf extracts have been therapeutically used as folk medicine to control leprosy, intestinal helminthiasis, respiratory disorders, and constipation and also as a general health promoter. Neem oil finds use to control various skin infections. Bark, leaf, root, flower and fruit together cure blood morbidity, biliary afflictions, itching, skin ulcers, burning sensations and phthisis. Neem tree has adaptability to a wide range of climatic, topographic and edaphic factors. It thrives well in dry, stony shallow soils and even on soils having hard calcareous or clay pan, ata shallow depth. Neem tree requires little water and plenty of sunlight.[5-8]

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Methodology

Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus and Enterococcus faecalis, *Streptococcus mutans*, were enrolled in the study. Ethanolic extracts of *Azadirachta indica* leaves were prepared at varying concentrations and soaked on Whatmann filter paper discs, which were applied on inoculated plates of Muller Hinton agar.Standardized discs of the synthetic antibiotic: gentamycin 20 mg and gentamycin 10mg, also applied on inoculated plates of Muller Hinton agar. The disc diffusion method was used to screen the antibacterial activity of both Azadirachta indica leaf extractand synthetic antibiotics.[9-12]

Observation

Antimicrobial activity of *Azadirachta indica* plant extracts against some specific bacteria which cause different infections and diseases on the human being. Our study on Neem (Azadirachta indica) was primarily done in order to enable us to trace and witness how it is effective on some pathogens causing diseases especially the ones responsible for intestinal infections (diseases) such as Staphylococcus aureus and Escherichia coli. Neem has been described differently worldwide, which has sounded as an answer to many diseases. This study helped us to improve our scientific knowledge in terms of antimicrobial activities of medicinal plants as well.[13-18]

Conclusion

As this tree was proven to be very important in solving health problems, if found really helpful after this study, people will be aware of its effectiveness. Generally, medicinal herbs are less expensive than other drugs; this justifies Neem's frequent use in many countries.[19-20] The purpose of the present study was to investigate the antimicrobial activity of Neem leaves against human pathogenic bacteria, including Escherichia coli, *Streptococcus mutans*, Pseudomonas aeruginosa,Enterococcus faecalis, and *staphylococcus aureus*.

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