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EVALUATION OF THE ANTIBACTERIAL PROPERTY OF *BASELLA ALBA* EXTRACT ON ORAL PATHOGENS AND ITS CYTOTOXICITY ON GINGIVAL FIBROBLASTS: AN IN-VITRO STUDY

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ABSTRACT

INTRODUCTION

Microbial plaque is the primary etiological factor of periodontal diseases. Therefore, the removal of plaque personally or professionally is necessary to attain periodontal health. Various treatments, such as antibiotics, anti-inflammatory drugs, immunomodulators, and other chemical agents for plaque control, have been employed alongside scaling and root planing to address gingivitis and periodontitis. But with widespread usage of antibiotics many oral pathogens have become resistant to them, thus the use of herbal or plant-based products have come into being. One such plant is *Basella alba* which has good anti-inflammatory, antioxidant and antimicrobial properties. The extract of this herb can be formulated into gels, mouthwashes and other such local drug delivery agents to treat gingivitis and periodontitis.

AIM

To establish the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of *Basella alba* against commonly occurring oral microorganisms and also to determine the cytotoxicity of *Basella alba* on human gingival fibroblast.

MATERIALS AND METHODS

The MIC and MBC of *Basella alba* extract was determined against commonly occurring microorganisms of oral cavity with which the antibacterial effect was assessed. MTT assay was used to determine the cytotoxicity of the extract on human gingival fibroblasts. Data obtained was tabulated and the concentrations around which the extract showed antibacterial activity against the selected microorganisms were determined.

RESULTS

In the cytotoxicity assay, 100% extract concentration yielded 31% viable cells, while 3.125% concentration showed 76% viable cells. The MIC value for *Basella alba* against the selected microorganisms was found to range from 0.8 to 3.12 µl/ml. The MBC levels for *Basella alba* ranged from 0.2 µl/ml to 1.6 µl/ml, and for CHX, it was 0.2 µl/ml.

CONCLUSION

Basella alba had shown weak cytotoxic activity at a concentration of 3.125%. The antibacterial activity against the commonly occurring microorganisms like *Streptococcus oralis, Streptococcus mitis* and *Streptococcus sanguinis* was also evident.

Keywords

Plaque; basella alba; cytotoxicity; fibroblasts

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