Bakuchiol is an Effective Antimicrobial agent in Maintaining Oral health of the Elderly Adults

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Abstract

Introduction: Aging leads to hyposalivation, which in turn alters the normal oral microflora. *Candida* species often becomes a predominant inhabitant due to changes in the physiology and functions of the oral fluid and tissues. This study aimed to determine the antimicrobial activity of active compound bakuchiol on candidal population of the elderly adults. The action mechanism of bakuchiol may suggest its potential as an effective agent for the maintenance of oral health in this target group.

Methods: Oral swab specimens were obtained from the elderly adults. The candidal presence was conventionally determined using selective CHROM agar. A cell suspension at the determined proportion was prepared and its susceptibility towards bakuchiol was assessed based on the minimal growth inhibitory concentrations, MIC_{50} and MIC_{90}. The minimal biofilm eliminating concentration (MBEC) was determined using crystal violet dye technique. Candidal resistance to bakuchiol was indicated by the percentage of viable cells following treatment with bakuchiol, which was quantitatively estimated using XTT assay. Real time PCR was performed to verify the influence of bakuchiol on HWP1 gene that is associated with candidal adhesion during biofilm formation.

Results: The MIC_{50} and MIC_{90} of bakuchiol towards oral candida were determined at 15.6 and 31.3 µg/ml, respectively. Within these concentrations bakuchiol was found to reduce both the biomass and viable cell population of biofilm by 54.22% and 44.23%, respectively ($P < 0.05$). Bakuchiol also down regulated the expression of HWP1 gene at the MIC_{50}.

Conclusion: Bakuchiol exhibited antimicrobial activity on candidal population of the elderly adults by suppressing its growth and interrupting formation of its biofilm. Hence, suggest its potential as an antimicrobial agent for use in the maintenance of oral health in the elderly adults.