

***In vitro* anti-biofilm activity of macelignan isolated from *Myristica fragrans* Houtt. against oral primary colonizer bacteria**

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Abstract

In early dental plaque formation, oral primary colonizers such as *Streptococcus mutans*, *Streptococcus sanguis* and *Actinomyces viscosus* are initially attached to the pellicle-coated tooth surface to form a biofilm. The study aimed to determine the efficacy of macelignan, isolated from nutmeg (*Myristica fragrans* Houtt.), in removing each single oral primary biofilm *in vitro* on a polystyrene 96-well microtiter plate. Four biofilm growth phases (4, 12, 20 and 24 h) were evaluated in this study after treatment with macelignan at various concentrations (0.2, 2 and 10 µg/mL) and exposure times (5, 10 and 30 min). Anti-biofilm activity of macelignan was measured as the percentage of the remaining biofilm absorbance after macelignan treatment in comparison with the untreated control. At 24 h of biofilm growth, *S. mutans*, *A. viscosus* and *S. sanguis* biofilms were reduced by up to 30%, 30% and 38%, respectively, after treatment with 10 µg/mL macelignan for 5 min. Increasing the treatment time to 30 min resulted in a reduction of more than 50% of each of the single primary biofilms. The results indicate that macelignan is a potent natural anti-biofilm agent against oral primary colonizers. Copyright © 2007 John Wiley & Sons, Ltd.

Keywords

anti-biofilm activity • macelignan • *Myristica fragrans* Houtt. • oral bacteria

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