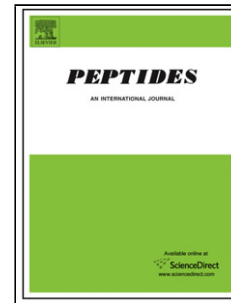


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Antibacterial effect and bond strength of a modified dental adhesive containing the peptide nisin

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Highlights

- Nisin-incorporated adhesive inhibits the growth of *S. mutans* and its biofilm
- The incorporation of nisin has no adverse effect on the curing behavior of Single Bond 2
- A 1% nisin-incorporated adhesive does not influence bond strength

Abstract

This study attempted to incorporate the antibacterial peptide nisin into an etch-and-rinse dental adhesive to evaluate the antibacterial activity of the modified adhesive against *Streptococcus mutans* and the bond strength. Single Bond 2 was used as a negative control, and nisin was incorporated at 1%, 3%, and 5% (w/v). The antibacterial activity against *S. mutans* was evaluated using the film contact test, the agar diffusion test, XTT assays and confocal laser scanning microscopy (CLSM). The microtensile bond strength (μ TBS) of the modified dental adhesive was also evaluated. The cured nisin-incorporated dental adhesive exhibited a significant inhibitory effect on the growth of *S. mutans* ($P<0.05$), and the inhibitory effect was strengthened as the nisin concentration increased ($P<0.05$). However, no significant differences in the agar diffusion test were found for the cured nisin-incorporated adhesives compared with the

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