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Antibacterial activity of composite resin with glass-ionomer filler particles

Seitaro SAKU[1)], Hirotomo KOTAKE[1)], Rogelio J. SCOUGALL-VILCHIS[1)], Shizue OHASHI, Masato HOTTA[1)], Shinya HORIUCHI[2)], Kenichi HAMADA[3)], Kenzo ASAOKA[3)], Eiji TANAKA[2)] and Kohji YAMAMOTO[1)]

1) Department of Operative Dentistry, Division of Oral Functional Sciences and Rehabilitation, Asahi University School of Dentistry
2) Department of Orthodontics and Dentofacial Orthopedics, The University of Tokushima Graduate School of Oral Sciences
3) Department of Biomaterials and Bioengineering, The University of Tokushima Graduate School of Oral Sciences

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Abstract:
The purpose of this study was to examine the antibacterial activity of composite resin with glass-ionomer filler particles *versus* that of contemporary commercial composite resins. Three composite resins were used: Beautifil II (containing S-PRG filler), Clearfil AP-X, and Filtek Z250. Resin blocks were bonded to maxillary first molars, and plaque accumulation on the resin block surface was examined after 8 hours. For the antibacterial test, the number of *Streptococcus mutans* in contact with the composite resin blocks after incubation for 12 hours was determined, and adherence of radiolabeled bacteria was evaluated. Less dental plaque was formed on Beautifil II resin block as compared to the other two materials. Antibacterial test revealed that there were no significant differences in the number of *Streptococcus mutans* among the three composite resins. However, the adherence of radiolabeled bacteria to the saliva-treated resin surface was significantly ($p<0.01$) lower in Beautifil II than in the other two materials. These results suggested that Beautifil II could reduce dental plaque formation and bacterial adherence, leading to prevention of secondary caries.

Key words:
Glass-ionomer filler, Composite resin, Antibacterial activity

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