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Influence of methylmercaptan on the bonding strength of autopolymerizing reline resins to a heat-polymerized denture base resin

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Abstract:
Effects of methylmercaptan solution (MS), a volatile sulfur compound produced by gram-negative oral microorganisms, on the adhesion of reline denture resins were investigated. For this purpose, a total of 120 disk-shaped specimens prepared from a heat-polymerized denture base resin (Acron) immersed in MS of different concentrations (0.01, 0.1, and 1.0 mol) as well as in purified water as a control at 37°C for 4 weeks. Each of three commercial autopolymerizing reline resins (Rebaron, Mild Rebaron, and Tokuyama Rebase II) was bonded to a specimen. The shear bond strength tests were conducted for the specimens, with and without the application of a primer. The bond strength with 1.0 mol MS was significantly lower than those with other solutions ($p < 0.05$). The primer application had a significant positive effect on the bond strength. The debonded Acron surfaces showed evidence of incomplete polymerization. The results suggested a potential adhesion-inhibiting effect of the MS on relined dentures.

Key words:
Hard reline resin, Methylmercaptan, Shear bond strength

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