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Impact of apigenin and seashell nano-additives on the antifungal and roughness behavior of a soft denture liner

Abstract:

Fungal colonization of the soft denture liner is the first step in the development of denture-induced stomatitis. The study aims to assess apigenin and seashell nano-additives for their antifungal efficacy and their impact on the surface roughness of a soft denture liner. The study was accomplished in the Colleges of Dentistry in Duhok, Mosul and Hawler Medical Universities. The Antifungal efficacy against *Candida albicans* was performed by the minimum inhibition concentration (MIC), for apigenin the MIC was determined by agar well diffusion and set at (0.25%, 0.5% and 1%) while for seashells, MIC was determined by broth dilution and set at (1.25%, 2.5% and 5%). Fungal adhesion was conducted on seven groups (unmodified soft liner and six groups of the modified liner with the antifungal concentrations (three for each nanoparticle). A total of forty-nine square-shaped specimens (10*10*2mm) of (GC, Super-soft, heat-cured, USA) soft liner were prepared, the adherent fungal cells were enumerated under a light microscope for each specimen in four fields and the results were expressed as fungal cells/mm^2. For the surface roughness, forty-nine specimens of (20*10*3 mm) of the soft liner were prepared and the average surface roughness was obtained in μm using a profilometer (Talysurf, Taylor Hobson, UK). Apigenin and seashell-modified soft liner observed a significant decrease in both fungal adhesion and surface roughness compared to the unmodified liner and the reduction was related directly to the concentration of both additives. Apigenin and seashell nano-additives were effective as antifungal agents beside improving the surface roughness of the soft liner.