In vitro assessment of a remineralisation system on dental enamel

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Abstract

This study aimed to assess a remineralisation system on demineralised dental enamel. In vitro, a pH-cycling enamel model was used to test the remineralisation potential of Casein phosphate-amorphous calcium phosphate (CPP-ACP). Demineralised teeth were remineralised by CPP-ACP for 3h or 5h. After remineralisation, remineralised teeth were evaluated by scanning electron microscope (SEM), energy dispersive spectroscopy (EDS), and micro-hardness tester. It was observed that demienralised enamel was completely remineralised after 5h remineralisation. The Ca/P ratio in remienralised enamel was consist with that of hydroxyapatite, the microstructure in native enamel. The micro-hardness of acid-etched enamel in group A (322.55± 31.90) and group B (322.55± 31.90) recovered up to the value of native enamel after 5h remineralisation ($p>0.05$). In vitro study, CPP-ACP could strengthen the re-hardening effects on demineralised enamel. CPP-ACP was a safe and efficient option in managing enamel demineralisation.