

Comparison of the Hydration Products of Commercial and Experimental Calcium Silicate Cement: The Preliminary Observational Study

Authors : Seok Woo Chang

Abstract : Aim: The objective of this study was to compare and evaluate the hydration products of commercial and experimental calcium silicate cement. Materials and Methods: The commercial calcium silicate cement (ProRoot MTA, Dentsply) and experimental calcium silicate cement (n=10) were mixed with distilled water (water/powder ratio = 20 w/w) and stirred at room temperature for 10 hours. These mixtures were dispersed on wafer and dried for 12 hours at room temperature. Thereafter, the dried specimens were examined with Scanning Electron Microscope (SEM). Electron Dispersive Spectrometry (EDS) was also carried out. Results: The commercial calcium silicate cement (ProRoot MTA) and experimental calcium silicate cement both showed precipitation of rod-like and globule-like crystals. Based on EDS analysis, these precipitates were supposed to be calcium hydroxide or calcium silicate hydrates. The degree of formation of these precipitates was higher in commercial MTA. Conclusions: Based on the results, both commercial and experimental calcium silicate cement had ability to produce calcium hydroxide or calcium silicate hydrate precipitates.

Keywords : calcium silicate cement, ProRoot MTA, precipitation, calcium hydroxide, calcium silicate hydrate

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