Comparison of mixing methods for fabrication of new glass ionomer cement (GIC)-nanosilica-hydroxyapatite-zirconia composite: A preliminary study

Wan Zaripah Wan Bakar, Faharina Abdul Hamid and Zaihan Ariffin
Univeriti Sains Malaysia Health Campus, Malaysia

The current conventional GIC has several disadvantages such as low strength, easily worn out and less aesthetic due to opacity in colour. The objective of this study is to compare two techniques of fabricating GIC incorporated with nanosilica-hydroxyapatite-zirconia hybrid where this new material was expected to has improved the limitations. Two techniques of mixing the new material using spatulation and one-pot synthesis methods were compared by hardness evaluation using Vickers hardness test. Both methods showed highest hardness value with addition of 1.5% zirconia. Generally, spatulation method produces material with significantly higher mean Vickers hardness value as 65.63HV (±0.91) compared to one-pot synthesis method as 61.98HV (±1.42). Within the limitation of this preliminary study, the spatulation method is a better technique in fabricating harder glass ionomer cement (GIC)-nanosilica-hydroxyapatite-zirconia composite compared to one-pot synthesis.

Biography

Wan Zaripah Wan Bakar is a Senior Lecturer and Consultant Prosthodontist at University Sains Malaysia, Malaysia. She has completed her Doctorate in Clinical Dentistry (Prosthodontics) at University of Adelaide, Australia in 2006. She has completed her Post-doctoral Research Fellow program from University of Texas Health Science Center at San Antonio (UTHSCSA), USA in 2013. She has published more than 30 articles.

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