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Incorporation of hydroxyapatite and fluoroapatite in silorane based resin for the invention of a bioactive restorative material and its chemical characterization

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The main objective of a restorative dental material is to restore the function and aesthetics of the dental patient. There were a number of restorative materials which were fulfilling the requirements of a dental restorative material partially or somewhat completely with some limitations. 3M ESPE recently introduced a new dental restorative material, Filtek™ Silorane, which was claimed to fulfil the main objective completely, which was even confirmed by the recent studies. In order to make the best available dental restorative material an ideal restorative material it must be bioactive. This study has been planned for the invention of a Silorane based bioactive material. It was proposed to incorporate the known bioactive materials (Hydroxyapatite and Fluoroapatite) in Silorane and analyze its chemical characterization. Hydroxyapatite and Fluoroapatite has been synthesized and were added in Silorane by 5, 10, 40, 50 and 60% weight ratio. The resultant samples were chemically analyzed by FTIR and Raman Spectroscopy. The incorporation of synthesized Hydroxyapatite and Fluoroapatite into Silorane results in the invention of a novel bioactive restorative material. The resultant FTIR and Raman spectra shows that the Silorane incorporated by 40, 50 and 60% hydroxyapatite and fluoroapatite were altering the chemical structure of Silorane while spectrum of the samples with 5 and 10% of hydroxyapatite and fluoroapatite shows the presence of apatites without altering the chemical structure of Silorane.

Biography

Shoaib Khan has completed his bachelor's in dental surgery from Karachi in 2003. He did his Post Graduation from Queen Mary, University of London. He is currently working as an Associate Professor and Head of the Department of Science of Dental Materials at College of Dentistry, Ziauddin University. He is also enrolled in master's in dental surgery in the subject of Science of Dental Materials. He is also having an honorary post of a General Secretary of Pakistan Dental Association (Karachi Chapter)

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