

Author's Accepted Manuscript

Bioactivity, cytocompatibility and thermal properties of experimental Bioglass-reinforced composites as potential root-canal filling materials

Raghad Abdulrazzaq Alhashimi, Francesco Mannocci, Salvatore Sauro



PII: S1751-6161(17)30032-2
DOI: <http://dx.doi.org/10.1016/j.jmbbm.2017.01.022>
Reference: JMBBM2193

To appear in: *Journal of the Mechanical Behavior of Biomedical Materials*

Received date: 28 November 2016
Revised date: 10 January 2017
Accepted date: 13 January 2017

Cite this article as: Raghad Abdulrazzaq Alhashimi, Francesco Mannocci and Salvatore Sauro, Bioactivity, cytocompatibility and thermal properties of experimental Bioglass-reinforced composites as potential root-canal filling materials, *Journal of the Mechanical Behavior of Biomedical Materials* <http://dx.doi.org/10.1016/j.jmbbm.2017.01.022>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

Bioactivity, cytocompatibility and thermal properties of experimental Bioglass-reinforced composites as potential root-canal filling materials

Raghad Abdulrazzaq Alhashimi^a, Francesco Mannocci^b, Salvatore Sauro^{c*}

^aDepartment of Conservative Dentistry, College of Dentistry, Baghdad University, Iraq;

Research associate, Department of Conservative Dentistry, King's College London Dental Institute, London, UK

^bDepartment of Conservative Dentistry, King's College London Dental Institute, London, UK.

^cDental Biomaterials Preventive and Minimally Invasive Dentistry, Departamento de Odontologia, Facultad de Ciencias de la Salud, Universidad CEU-Cardenal Herrera, Valencia, Spain

***Correspondence to:** Dental Biomaterials Preventive and Minimally Invasive Dentistry Head of Dental Research, Departamento de Odontología, Facultad de Ciencias de la Salud, Universidad CEU-Cardenal Herrera, C/Del Pozo s/n, Alfara del Patriarca 46115 - Valencia, Spain. Tel.: (+34) 96 136 90 00; fax: (+34) 96 139 52 72. salvatore.sauro@uch.ceu.es

ABSTRACT

To evaluate the bioactivity and the cytocompatibility of experimental Bioglass-reinforced polyethylene-based root-canal filling materials. The thermal properties of the experimental materials were also evaluated using differential scanning calorimetry, while their radiopacity was assessed using a grey-scale value (GSV) aluminium step wedge and a phosphor plate digital system.

Bioglass 45S5 (BAG), polyethylene and Strontium oxide (SrO) were used to create tailored composite fibres. The filler distribution within the composites was assessed using SEM, while their bioactivity was evaluated through infrared spectroscopy (FTIR) after storage in simulated body fluid (SBF). The radiopacity of the composite fibres and their thermal properties were determined using differential scanning calorimetry (DSC). The

Download English Version:

<https://daneshyari.com/en/article/5020664>

Download Persian Version:

<https://daneshyari.com/article/5020664>

[Daneshyari.com](https://daneshyari.com)