

5th World Congress on

Materials Science & Engineering

June 13-15, 2016 Alicante, Spain

To develop a biocompatible and biodegradable polymer-metal composite with good mechanical and drug release properties

Javaria Sami¹, Murtaza Najabat Ali¹, Umar Ansari¹ and Faisal Qayyum²¹National University of Sciences and Technology (NUST), Islamabad²University of Engineering and Technology, Taxill

For achieving additional benefits and improving the material characteristics two or more materials are often combined together in the form of composites. Composites are important because of their light weight, high strength and flexibility of design. Composite materials provide various advantages based on their particulate or fibrous nature and on the basis of individual qualities of the constituting elements of the composites. Besides the multiplied benefits achieved with the composite materials, they being composed of two different materials exhibit greater challenges and biocompatibility threats which need to be addressed while developing a composite material. A structural composite of bio-absorbable nature is developed using a polymeric material and metal particles. The composite material so developed would provide altered strength and flexibility, better than the individual constituting materials for use in various biomedical devices and would eventually degrade on subject to exposure to the physiological environment. The two different varieties of the composite have been developed using metal particles and metal salt and they have been tested for their tensile, degradation and drug release properties, which have been found satisfactory for use of the composite in various biomedical devices and drug release applications.

Biography

Murtaza Najabat Ali is a Biomedical Engineer by profession and completed his BSc in Biomedical Engineering from University of Engineering & Technology (UET) Taxila Pakistan. He completed his MSc in Biomedical engineering from Brunel University. As part of his MSc academic program, he completed a research project entitled "Appraisal of the efficacy and effectiveness of Auxetic structures configured as endovascular implant relevant to the palliative treatment of oesophageal cancer". After completing his MSc, he worked as a Project Director at National Engineering & Scientific Commission (NESCOM) Pakistan, and setup a dedicated coronary stent manufacturing unit for coronary heart disease application which entailed design, manufacturing, mechanical testing (*in vitro* pulsatile fatigue testing and *in vivo* animal study), standardization of the production unit and CE Marking. He did his PhD from the University of Sheffield. He worked for Kroto Research Institute University of Sheffield in the position of Post-Doctorate Research Assistant for the pilot project which has been funded by the Research and Innovation Department University of Sheffield.

drmurtaza@smme.nust.edu.pk

Notes: