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Patent Search

Invention Title	A COMPOSITE MATERIAL FOR REPLACEMENT OF FEMORAL METAL STEM IN TOTAL HIP ARTHROPLASTY
Publication Number	18/2017
Publication Date	05/05/2017
Publication Type	INA
Application Number	5807/CHE/2015
Application Filing Date	28/10/2015
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	A61F 2/00

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Abstract:

The various embodiments of the present invention provide a chemical composition to replace the femoral metal stem prosthesis for total hip arthroplasty. The chemical composition for the femoral stem prosthesis comprises UHMWPE, HDPE, carbon fibers, glass fibers, hydroxyapatite, zirconia, and silicon dioxide. The synthesis of femoral stem prosthesis comprises procuring UHMWPE, HDPE; testing combination of HDPE with glass fibers and basalt fibers; melting UHMWPE and HDPE mixture to obtain extr that are cut to pellets; feeding pellets in injection molding machine and adding carbon fibers; obtaining the samples from injection molding machine; testing the samples for mechanical properties and adding the reinforcing agents of hydroxyapatite, silicon dioxide and zirconia as fillers to obtain a mixture; testing the mixture for friction and wear properties and fabricating the femoral stem using the mold. [FIG.1B]

Complete Specification**DESC: CROSS REFERENCE TO THE RELATED APPLICATION**

This patent application is related to and claims the benefit of priority from the Indian Provisional Patent Application with Serial No. 5807/CHE/2015 titled "A COMPOSITE MATERIAL FOR REPLACEMENT OF FEMORAL METAL STEM IN TOTAL HIP ARTHROPLASTY", filed on October 28, 2015, the contents of which are incorporated in entirety by way of reference.

A) TECHNICAL FIELD

The present invention is generally related to an implantable device. The present invention is particularly related to a composite material for the fabrication of implantable devices. The present invention is more particularly related to an implantable device composition for the total hip arthroplasty. The present invention is also related to a method for the fabrication of femoral stem for total hip arthroplasty.

B) BACKGROUND OF THE INVENTION

Total hip arthroplasty (THA) using a metallic hip prosthesis has been successfully performed since the early 1900's and is now a routine procedure adhered to orthopedic diseases such as osteoarthritis, fracture, dislocations, and rheumatic arthritis and aseptic or a vascular bone necrosis. During this procedure, the bone is prepared for the prosthesis by removing the damaged articulating end of the bone by resecting a portion of the bone including the femoral head. This exposes the inside of the metaphyseal region of the intramedullary canal in the proximal femur. The surgeon then drills or makes a cavity in the femur approximately in line with the

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Page last updated on: 26/06/2019