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Natural polymer based novel micro porous soft hydrogel system: A potential visco-supplimentation for biomedical applications

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We report herein, synthesis of natural polymer sodium alginate (Na-Alg) based novel soft hydrogel system where Aminocaproic Acid (ACA) was attached on to the polymer using carbodiimide coupling chemistry. The designed soft hydrogel was characterized using various analytical techniques such as Fourier Transform Infrared spectroscopy (FT-IR), Nuclear Magnetic Resonance spectroscopy (NMR), Scanning Electron Microscopy (SEM) and Differential Scanning Calorimetry (DSC). This soft hydrogel was further investigated for stress responsiveness using different rheological studies which confirmed the thixotropic nature of the gel, which is rendered flowable (fluid) on applying physical stress and recovers its "rigid" gel structure upon removal of these applied stimuli. In addition the hydrogel was found to be nontoxic in nature. This approach of synthesizing a natural polymer-based material could be applicable to a broad variety of other natural polymers and may have a potential utility as a visco-supplementation for orthopedic implants in the field of biomedical applications.

Biography

Dharmesh R Chejara has completed his PhD from Academy of Scientific and Innovative Research (AcSIR), New Delhi and PhD research work was carried out at CSIR-CSMCRI, Bhavnagar, India. He is currently pursuing his Postdoctoral Research since July 2014 from University of Witwatersrand, South Africa. He has published more than 10 papers in reputed journals.

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