



### Controlled Drug Delivery Based on Hybrid Crosslinked Hydrogels

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#### Abstract:

Herein, we developed poly (vinyl phenol) (PVP) and carboxymethyl chitosan (CH) based electron beam crosslinked hydrogels for controlled drug delivery. Hydrogels were crosslinked at 15 kGy, 30 kGy and 45 kGy irradiation dose. Swelling analysis was performed in distilled water, buffer and ionic solutions. Swelling results revealed that 15 kGy hydrogel showed optimum swelling in all solutions whereas as the irradiation was increased networking got severe. In-vitro biodegradation test was performed for one week in phosphate buffered saline (PBS). FTIR analysis exhibited the establishment of physical interactions and confirmed the incorporation of functional groups present in the hydrogel. SEM micrographs depicted porous structure of the hydrogel, which is responsible for swelling and drug loading and release. Antibacterial test exhibited good antimicrobial characteristic against gram positive and negative bacteria. In order to analyze drug release behaviour of hydrogels, PBS (pH= 7.4), SIF (pH= 6.8), SGF (pH= 1.2) were chosen and UV-Vis spectroscopy was used to calculate drug release (%).



**Biography:** Muhammad Asim Raza from Pakistan, have done bachelors and masters in Polymer Engineering from Pakistan. Now he is doing PhD on scholarship bases in Radiation Science and Technology from University of Science and Technology/Korea Atomic Energy Research Institute, Daejeon, South Korea.

#### Publications:

1. Mutations in TBC1D24, a gene associated with epilepsy, also cause nonsyndromic deafness
2. Exome sequencing of Pakistani consanguineous families identifies 30 novel candidate genes for recessive intellectual disability.
3. Association between Rare Variants in AP4E1, a Component of Intracellular Trafficking, and Persistent Stuttering.
4. miR-208a-3p Suppresses Osteoblast Differentiation and Inhibits Bone Formation by Targeting ACVR1.

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