

## Synthesis, Characterization and Applications of Hydrogels Based on Chitosan Derivatives

**Authors :** Mahmoud H. Abu Elella, Riham R. Mohamed, Magdy W. Sabaa

**Abstract :** Firstly, synthesis of N-Quaternized Chitosan (NQC), then it was proven by FTIR and <sup>1</sup>H-NMR analysis. The degree of quaternization(DQ 35% ) was determined by equation. Secondly, synthesis of cross-linked hydrogels composed of NQC and poly (vinyl alcohol) (PVA) in different weight ratios in presence of glutaraldehyde (GA) as cross-linking agent. Characterization of the prepared hydrogels was done using FTIR, SEM, XRD, and TGA. Swellability in simulated body fluid (SBF) solutions applied on NQC / PVA hydrogels and swelling rate(Wt%) and metal ions uptake was done on it.

**Keywords :** hydrogel, metal ions uptake, N-quaternized chitosan, poly (vinyl alcohol), swellability

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