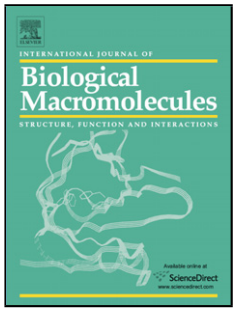


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# Biocompatible and biodegradable poly(Tannic Acid) hydrogel with antimicrobial and antioxidant properties

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## Research Highlights

-Biocompatible and biodegrade p(TA) hydrogels films for potential wound dressing

-Superporous natural polymeric networks of p(TA) hydrogel films.

-Antioxidant and antibacterial p(TA) hydrogel disc to prevent infections.

- Anti-apoptotic and anti-necrotic p(TA) hydrogel to protect cell from DNA damaging.

## ABSTRACT

A novel resourceful bulk poly(Tannic Acid) (p(TA)) hydrogel was prepared by crosslinking TA molecules with an epoxy crosslinker, trimethylolpropanetriglycidyl ether (TMPGDE), in an autoclave at 90 °C for 2 h. The obtained p(TA) hydrogels were in disk form and have highly porous morphology. The swelling characteristics of p(TA) hydrogels were investigated in wound healing pH conditions of pH 5.4, 7.4, and 9 at 37.5 °C, and the hydrogels showed