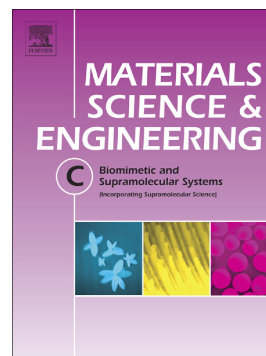


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Antimicrobial and Toxicological Behavior of Montmorillonite immobilized Metal Nanoparticles

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Highlights

- Ag and Cu NPs are deposited *in situ* over montmorillonite with different reductants
- Stronger reductants produce smaller NP size in presence of montmorillonite
- The nanohybrids ~~has~~ have excellent antimicrobial and antifungal behaviour
- The nanohybrids show compatibility with human RBC and dermal fibroblast cells

Abstract

With increasing demand for novel and potent antimicrobial agents to combat cross-infections and infectious diseases, silver and copper based nanoparticles (NPs) deposited over supports such as montmorillonite (MMT) ~~is~~ are playing a crucial role in shaping the current research scenario. Although materials based on Ag NP and Cu NP on MMT ~~has~~ have been reported, its toxicological properties on human cell lines ~~has~~ have not been accounted for. This paper reports a comparative study on synthesis, antibacterial, antifungal and toxicological behavior of Ag and Cu NPs deposited over MMT nanosheets synthesized by employment of different reduction media. The effect of synthesized NP-MMT hybrids on human erythrocytes and fibroblast cells has been evaluated. The NP formation was facilitated using borohydride and ethyl alcohol

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