

Bionanocomposites derived from natural hydrogel matrices: An application for water purification**Shivani Bhardwaj Mishra**

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Bionanocomposites derived from natural hydrogels have shown an effective material for water purification. These natural hydrogel matrices fall under the category of superabsorbents that can absorb large volume of water. Bionanocomposites synthesized from these matrices reinforced with nanomaterials are designed to obtain a supramolecular interpenetrating network capacity that is expected to absorb water many-folds when compared to its pristine form. Hydrogels has an ability to change its chemical structure that induces the volume change as per the physical conditions such as pH, temperature, salt concentration, electric field and solvent quantity thus making these material as stimuli responsive smart polymers and can be modified to smart materials with tailor made properties. To suit to a type of an application, the bionanocomposites can be devised with unique properties that can be exploited for natural, applied and medical sciences. This talk deals with the recent research progress in the area of bionanocomposites and its application to waste water treatment.

Biography

Shivani Bhardwaj Mishra is working as Professor at Nanotechnology and Water Sustainability Unit, University of South Africa. She obtained her PhD from Jamia Millia Islamia, India. She is currently Group Leader of the research area for the Sol-Gel Science and Technology, polymer ceramic composites/nanocomposites, organic-inorganic hybrid systems and its application for water research. She has experience of more than 14 years of teaching at undergraduate and postgraduate level and supervising Doctoral and Master's students. She has many local and international collaborations and has published over 75 research articles in peer reviewed scientifically accredited international journal. She has been recognized as Fellow of Royal Society of Chemistry [FRSC] and has been acknowledged as Rated Researcher with C-3 rating by National Research Foundation, South Africa. Recently, she has been awarded Unisa's Chancellor's award for her research excellence.

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