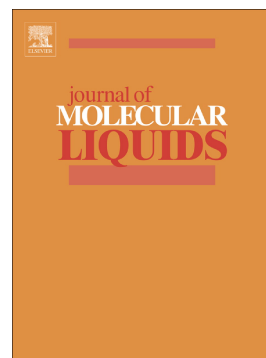


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Peptide mediated facile fabrication of silver nanoparticles over living diatom surface and its application

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Abstract

Peptide fabricated diatom frustules offer admirable conditions to synthesize (in situ) silver nanoparticles (AgNPs) of size between 30 to 42 nm in diameter at physiological conditions. The formation of AgNPs was achieved by photo-induced reduction process using UV-B rays from an electric lamp. The kinetics of NPs synthesis via photo-reduction is highly sensitive and depends upon peptide-diatom interactions which modify the rate of synthesis. Thus an alternative and effortless synthesis of such AgNPs-peptide embedded diatom devices could be utilized as high efficiency dye synthesized solar cell (DSSC) in the progress of renewable & sustainable energy field.

Keywords: Silver nanoparticles; Peptides; Nanomaterials; Diatom; DSSC

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