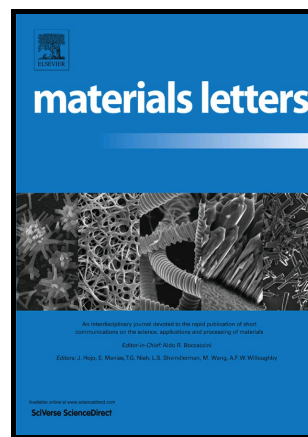


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Influence of pH on green synthesis of Ag nanoparticles

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Abstract

Ag nanoparticles are synthesized by a biological process using algae *Parachlorella kessleri*. The effect of changes in the solutions pH on the green synthesis is investigated. The formation of Ag nanoparticles (AgNPs) was monitored using a UV–vis spectrophotometer and verified by TEM. The results confirmed formation of polyhedron and/or near polyhedron AgNPs, ranging between 5 and 60 nm in diameter. UV–vis analysis and TEM observation revealed that the size and stability of AgNPs depend on the pH of solution. AgNPs formed in solutions of higher pH (8 and 10) are polyhedron, fine, with narrow size interval and stable with average size 15 nm. Nanoparticles formed in solutions of low pH (2, 4 and 6) started to lose their stability on 10th day of experiment, and the particle size interval was wide.

Keywords: Ag nanoparticle; Particles size; stability; Algae; TEM; pH

1. Introduction

In recent years, great efforts have been made in the field of bionanotechnology to develop eco-friendly and sustainable greener processes [1]. Among heavy and noble metal nanoparticles [2, 3]. AgNPs have received major attention due to their unique characteristics [4-12].

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