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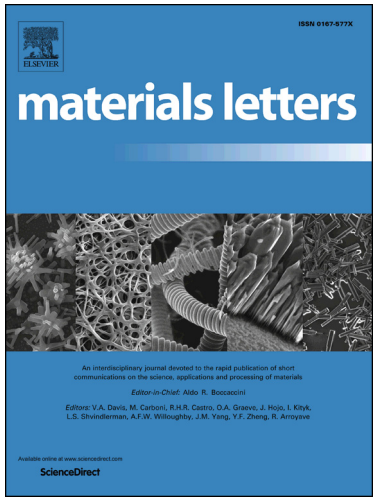

Nitrolotriacetic acid assisted one step synthesis of highly stable silver nanoparticles in aqueous medium: Investigation of catalytic activity

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Nitrolotriacetic acid assisted one step synthesis of highly stable silver nanoparticles in aqueous medium: Investigation of catalytic activity.

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Highlights

- Nitrolotriacetic acid has been used to synthesise silver nanoparticles in aqueous medium.
- Nitrolotriacetic acid acts as both reducing and stabilizing agent in this protocol.
- Size of AgNPs can be tuned by varying the concentration of NTA.
- Catalytic activity of NTA stabilized AgNPs was compared with PVP stabilized AgNPs.

Abstract: Highly stable dispersion of nanosized silver nanoparticles have been synthesized using biodegradable nitrolotriacetic acid (NTA) as both stabilizing and reducing agent in aqueous medium without using any hazardous chemicals. Due to their readily accessible surface, the synthesized silver nanoparticles showed good catalytic activity in the industrially important catalytic reduction of 4-nitrophenol (4-NP) to the corresponding amines in the presence of $NaBH_4$ and the results have been compared with that of polyvinylpyrrolidone (PVP) stabilized silver nanoparticles.

Keywords: Silver Nanoparticle(AgNPs), Nitrolotriacetic acid (NTA), Catalysis, 4-nitrophenol (4-NP).

1. Introduction

Silver nanoparticles (AgNPs) have significant importance among other inorganic metallic nanoparticles because of their applications in number of areas including catalysis [1]. There are many reported methods for synthesizing silver nanoparticles with different shapes and