



Journal of Applicable Chemistry

2016, 5 (6): 1261-1266

(International Peer Reviewed Journal)



Synthesis of Cobalt Nanoparticles Prepared by Wet Chemical Reduction Method at Room Temperature

Dipiti Porwal*, Alka Srivastava, Krishna Srivastava and Jagdish Prasad

*Department of Chemistry, University of Allahabad, Allahabad-211002 (U.P.), **INDIA**

Email: dipiti.porwal@gmail.com

Accepted on 17th November 2016, Published online on 27th November 2016

ABSTRACT

A simple wet chemical route is followed to synthesize cobalt nanoparticles by the reduction of cobalt nitrate with sodium borohydride under various experimental conditions in an aqueous medium. It was found that variation in the concentration of Co^{2+} solution changed the morphology of the products. Transmission Electron Microscopic studies of the prepared samples revealed that at a fixed concentration of Co^{2+} solution in the absence of any stabilising agent and surfactant, rod shaped cobalt nanoparticles along with some spherical nanoparticles are produced. TEM studies show that on increasing the concentration of cobalt (II) ions under the same experimental conditions, the clusters of cobalt are formed. TEM images also show that the addition of ascorbic acid initiates the formation of spherical cobalt nanoparticles while the addition of oleylamine (OAm) along with ascorbic acid stabilises these spherical cobalt nanoparticles.

Keywords: Nanoparticles, Chemical reduction, Surfactant, Transmission electron microscopy, Aggregation.
