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Microwave oven Aided Synthesis and Characterization of Barium oxide Nanoparticles

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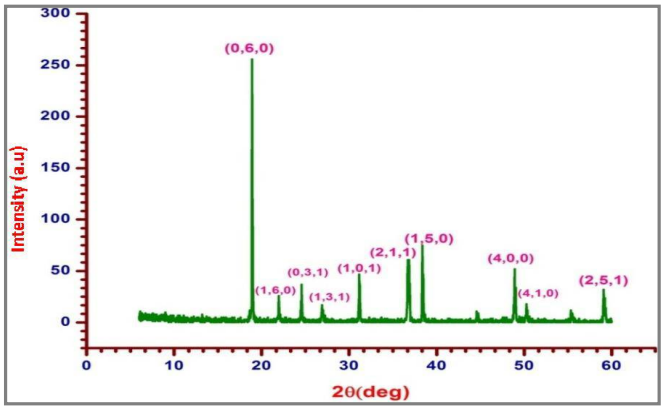
ABSTRACT

Nano meter sized metal oxide particles draw much attention because of their unusual physical and chemical properties. They have wide range of applications in the fields of electronics, fuel cells, batteries, agriculture etc., This article focuses on the microwave oven aided synthesis and characterization of Barium oxide (BaO) nanoparticles. Synthesis has been carried out using reduction of research grade barium nitrate powder using natural gum (eucalyptus) as a fuel by solution combustion method. BaO nanoparticles were characterized by XRD for their crystallinity, shape and orientation, FTIR for their bond stretching, UV-Visible for measurement of energy band gap, EDS for their purity and SEM for their morphology. Adsorption studies are done to find the use of BaO as a base material in paints.

Graphical Abstract



XRD plot of BaO

Keywords: Nanoparticles, Solution Combustion Method, XRD, FTIR, UV-Vis spectrometry, EDS, SEM, Dye degradation.