

# SYNTHESIS AND CHARACTERIZATION OF AU NANOPARTICLES BY CHEMICAL REDUCTION METHOD

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## ABSTRACT

Nanomaterials play a major role in the field of science and technology. Nanotechnology is a field of applied science and technology. In recent years, metal nanoparticles with well-defined size, shape, and surface morphology have attracted a considerable amount of interest. Nanoparticles have great importance in the field of electronics, nanotechnology, biomedical, nutrition, agrochemical, and clinical research. During their synthesis, various parameters such as pH, concentrations, temperature are important for the formation of nanoparticles. Some examples of metal nanoparticles are silver nanoparticles (Ag NPs), gold nanoparticles (Au NPs), iron nanoparticles (Fe NPs), etc. The purpose of this work is to synthesize gold nanoparticles by chemical methods. These nanoparticles have antioxidant properties. It has several applications in the field of biotechnology such as sensory probes, drug delivery, and therapy techniques, and so on. Here in this present work, Au nanoparticles were synthesized which were then characterized using various techniques. The optical characterization is done using UV/Vis spectroscopy. The chemical bonding present in the prepared nanoparticles was investigated using the FTIR technique. The structural and morphological investigation has been done using XRD and FESEM technique.

**Keywords:** Gold, nanoparticles, noble metal, synthesis

