The Use of Nanoparticles in Biochemical Applications

Mürvet Volkan
Middle East Technical University, Faculty of Art and Science, Department of Chemistry, Ankara, Turkey, murvet@metu.edu.tr

The possible applications of magnetic systems based on nanoparticles in various fields like magnetic storage, ferrofluids, drug delivery, magnetic paints, magnetic ceramics, magnetic imaging, etc. [1] became one of the important research interests at present. These systems may behave differently from both the bulk materials and also from the isolated atoms/ molecules. Their final electrical, magnetic, etc. properties are highly dependent on their synthesis conditions. Therefore, the knowledge of their composition, structure, size and shape are the keys for recognizing the new properties which appear in these systems, particularly at the nanometer-subnanometer scale. In this work, the synthesis and structural characterization of iron oxides (magnetite, maghemite), and bimetallic nanoparticles (Co-Ag; Co-Au) are discussed and bioanalytical application are presented. XRD, TEM and UV-VIS techniques were used for characterization.