

## Curcumin based nanoparticles for sensing and environmental applications

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### Abstract

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Curcumin is a safe molecule which is present in turmeric. It possesses many functions in biology and has pharmaceutical applications. Using curcumin, polymer and metal-based hybrid nanomaterials can be prepared. In this talk, Au, Ag and Cu based nanoparticles using curcumin as a reducing agent will be discussed. Their applications in bio- and optical sensing will be evaluated. Similarly, curcumin can be used as a fluorescence probe molecule. Fluorescence properties of curcumin can be tuned by encapsulating it in a polymer matrix by preparing nano materials. In the second part of the talk, these polymers and curcumin-based nanomaterials will be discussed to improve analytical selectivity and sensitivity during optical sensing. Some of the biomedical applications for cancer treatment using such nanomaterials will be presented.

**Keywords:** Au, Ag, Cu, nanoparticles, environmental applications, fluorescence molecule, optical sensing