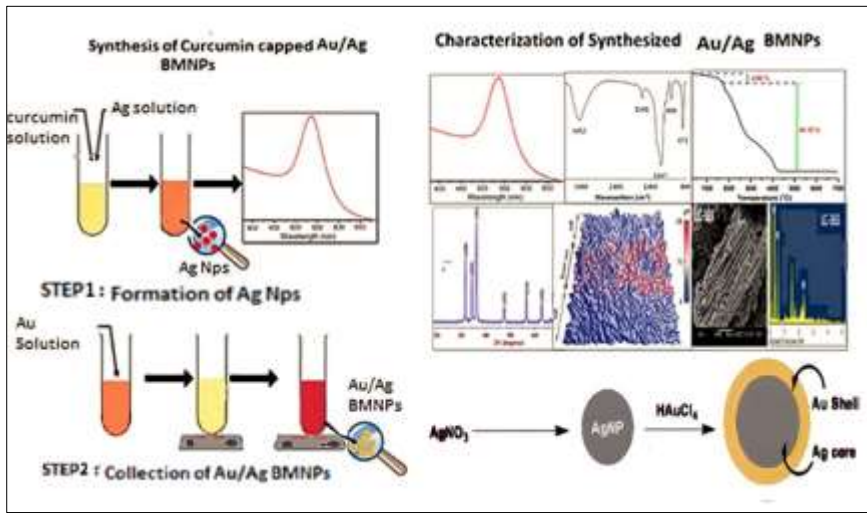




Final Year Project Showcase Batch-20XX Year 2023

Department: Chemistry Programme: Bechelors in Industrial Chemistry (BSIC)	
1	Project Idea Synthesis Of Curcumin-Capped Bimetallic Nanoparticles and their Applications,
2	Process a) Cucrumin-capped monometallic nanoparticles were synthesized using chemical reduction method in which curcumin was used instead of toxic reducing agents. b) Synthesized nanoparticles were characterized using UV-Visible Spectroscopy, Infrared Spectroscopy, Atomic Force Microscopy and Scanning Electron Microscopy.
3	Outcome Precise-size core-shell Au@Ag nanoparticles were synthesized using environmental friendly reducing agent curcumin.
4	Evidence (Theoretical Basis) Curcumin (1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione) also known as diferuloyl methane. It is a bright yellow natural pigment produced from the roots of Curcuma Longa L. and other species (family zingiberaceae). Nanoparticles including, gold, silver, and iron oxide have gained too much attention, due to their extreme importance and usage in medicine and the biomedical field. Therefore, it was necessary to develop green synthesis to minimize the toxic waste from the chemical reduction reaction. Lately, researchers have started to replace toxic reducing agents like sodium borohydride and hydrazine by using curcumin as reducing and capping agent. Curcmin not only reduce the metal, it also stabilized nanoparticles from coagulation. There are many reported method about synthesis of curcumin mediated metallic nanoparticles however very few studies have been conducted on synthesis of bimetallic nanoparticles by using curcumin instead of commonly used toxic reducing agent. An initiative was taken to synthesize the curcumin coated bimetallic nanoparticles. We started it with synthesis of curcumin coated silver and gold NPs. After the successful result, we synthesized core shell bimetallic NPs. We characterized our sample on FTIR (Fourier-transform infrared), UV-visible spectrophotometer, PDI and AFM. Through the results we have found that BNPs are in range of 80-90nm.
5	Competitive Advantage or Unique Selling Proposition Coreshell nanoparticles may have many applications. These particles can be used as nanosensors,
a	Attainment of any SDG (e.g. How it is achieved and why it is necessary for the region) In the proposed study monometallic and bimetallic nanoparticles will be synthesized using environmental friendly flavonoid curcumin instead of toxic chemical reductants. Their applications will be evaluated on the basis of biological assays only.
b	Any Environmental Aspect (e.g. carbon reduction, energy-efficient, etc.) In the proposed study monometallic and bimetallic nanoparticles will be synthesized using environmental friendly flavonoid curcumin instead of toxic chemical reductants. Their applications will be evaluated on the basis of biological assays only.

6	Target Market.	Coreshell bimetallic nanoparticles can be used in pharmaceutical industries as nanosensors.	
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10	Pictures (If any)		
11	Video (If any)		