

## Tentative Outline

### Special Issue for Current Medicinal Chemistry

Guest Editor: Dr. Lalthazuala Rokhum

### Recent advances in the synthesis and biological applications of metal/ metal oxides

#### Aims & Scope:

Nanotechnology is one of the most promising research areas in the modern science and technology. It deals with the particles having a one dimensional size range of 1-100 nm. In the last few decades, research on inorganic nanoparticles has been developing rapidly due to their exceptional electronic, catalytic, optical, magnetic and other physical and chemical properties that are quite different from the bulk one and these are directly related to particle size and shape. To utilize and optimize chemical or physical properties of nano-sized metal particles, a large spectrum of research has been focused to control the size and shape, which is crucial in tuning their physical, chemical and optical properties. Several techniques, including chemical and physical means have been developed to prepare metal nanoparticles (MNPs) such as chemical reduction, electrochemical reduction, photochemical reduction, heat evaporation, microwave assisted and photosynthesis etc.

Metal/metal oxide nanoparticles have been found tremendous applications in the fields of high sensitivity bimolecular detection, diagnostics, drug delivery, sanitization, water treatment, antimicrobials, therapeutics, catalysis and micro-electronics. They are well known for possessing an inhibitory effect toward various cancer cell lines, bacterial strains and microorganisms commonly present in medical and industrial processes. Metal/metal oxide nanoparticles plays a very vast role in medicinal fields as ant infection agents with various applications as cream, tropical ointments acting actively in healing wounds, burns, medical devices and implants prepared with metal-impregnated polymers.

**Keywords:** Metal nanoparticles; Green synthesis; Biomedicine; Metal oxides nanoparticles; Nano-ZnO; Antimicrobial activities; Mechanism; Antioxidant; Wound dressing; Anti-cancer activity; Iron oxide nanoparticles; Analysis; FT-IR; SEM; XRD; Bio-imaging; Copper-based nanoparticles; Toxicity; Antibacterial; Antiviral.

#### Subtopics:

- Advances in synthesis of ZnO nanoparticles and their biological applications
- Toxicity mechanism of various metal/metal oxides nanoparticles
- Green synthesis of silver nanoparticles and evaluation of their antimicrobial activities
- Recent advances in the synthesis and biomedical applications of gold nanoparticles

- □ Copper/ copper-based nanoparticles: Synthesis and biological applications
- □ Anti-cancer activities of metal oxides nanoparticles: A review
- □ Synthesis and medicinal applications of iron/ iron oxide nanoparticles: An overview and recent developments

**Schedule:**

Thematic issue submission deadline: May 30<sup>th</sup> 2020