



Dr. Mahnaz M. Abdi's main areas of expertise are Material and Analytical chemistry. She started her career as a researcher at the Institute of Tropical Forestry and Forest Products UPM, and at the Luleå University of Technology (LTU), Lulea, Sweden before being appointed to her current position. Her research interest involves synthesis, characterization and utilization of conducting polymers nanomaterials using chemical and electrochemical methods which have different applications in sensor, biosensors, and shielding materials. During her research in faculty of science, she prepared composites materials for shielding application and she has also prepared an optical sensor based on surface plasmon resonance (SPR) to detect trace amounts of heavy metal ions.

She has authored and co-authored more than 30 publications in scientific journals, book chapters, reviewed conference proceedings and she also holds two patents. Her works is sponsored by research grants, namely the UPM Research University Grant Scheme (RUGS) and the Fundamental Research Grant Scheme (FRGS)

## **Current Research Interest**

### **Bio nanocomposites for Biosensor application**

Recently, conducting polymers as transducer materials in various chemical and biochemical sensors have attracted attention because of their unique properties such as reversible chemical, electrochemical and physical properties controlled by a doping/de-doping process. Their application as electrode modifiers has the drawbacks of low sensitivity that could be enhanced by making conducting polymer nanostructures with large specific surface area and porous structure using nano crystalline cellulose, cationic and ionic surfactant as soft template.

Ionic liquid is another class of materials that can be used for modification of electrode surface. ILs-based electrodes possess striking electrochemical properties because of their wide potential window, high ionic conductivity and good electrochemical stability. It has been shown that the combination of unique properties of conducting polymers and ionic liquid have a significant impact on the electroactivity and electron transferring properties of composite-film modified electrode.