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Layer-by-layer multilayer assemblies of silver nanoparticles with Ni-crown type polyoxometalates for the electrocatalytic reduction of chlorate

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Silver nanoparticles have been synthesized and characterized by ultraviolet-visible spectroscopy, Atomic force microscopy (AFM) and Transmission electron microscopy (TEM). Multilayer assemblies of the crown-type POM $\text{Ni}_4(\text{P}_8\text{W}_{48}\text{O}_{148})(\text{WO}_2)]^{28-}$, have been immobilized onto glassy carbon electrode surfaces via the layer-by-layer (LBL) technique employing these synthesized silver nanoparticles (AgNP's) as the cationic layer. Resulting, thin films were characterized by different electrochemical and surface techniques. The redox behaviours of both the immobilised POM and the AgNP's are observed. The resulting films were found to be highly conductive through the employment of AC impedance. The resulting films exhibited electrocatalytic properties towards the reduction of chlorate.

Biography

Bushra Ali is currently a PhD student at Dundalk Institute of Technology Dundalk (DKIT) with Electrochemistry research group. She has completed her research work and submitted her thesis draft entitled as Investigations of Polyoxometalates and Nanoparticle/Graphene oxide modified electrodes for the different water pollutants. She has experience of working Environmental (Knock Bridge, Dundalk) as a Project Scientist for two year and worked on various environmental impact assessments, waste management and detailed chemical survey. She also has one year (full time) Quality Control Analyst experience with Care Pharmaceutical Company, where she done the quality analysis operations performance, root cause analysis, stability study/validation and SOPs/CMC formation.

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