

## **Synthesis of silica-supported hydroxamic ligand for removal of metals ions from water**

### **ABSTRACT**

Mesoporous silica supported adsorbents have been used towards metal ion removal from water due to their thermally stability and good sorption capacity. Thus, mesoporous silica-based methyl acrylate monomer (Silica-APTES-DPNO) was converted into hydroxamic acid (SBHA) by using oximation reaction and all products are analyzed by FT-IR. The SBHA showed satisfactory binding properties with copper, cobalt, nickel and lead are 242, 206, 195 and 516 mg g<sup>-1</sup>, respectively, with the batch adsorption system was set to pH 6. The kinetics of metal ions binding obeyed the pseudo-1st-order process up to 60 min. In this study also consider the Langmuir and Freundlich isotherm to find out the sorption behavior. The isotherm study demonstrated the well fit with Freundlich isotherm ( $R^2 > 0.99$ ). Thus, adsorption take place as a multilayer system, therefore, SBHA material is useful for the metal ions removal from water.