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Removal of lead ions from water using a resin of mimosa tannin and carbon nanotubes

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Abstract: A large amount of input of lead to the environment has resulted from several economical activities and has a significant impact on water resources. The reduction of lead contamination in water is an important issue for the environmental and human health. This study aimed to synthesize a tannin-formaldehyde resin with the inclusion of carbon nanotubes and coconut fibers, for removal of lead in water. The concentrations of Pb(II) were measured by Energy-Dispersive X-Ray Fluorescence (EDXRF) analysis. The physical and chemical characteristics and the kinetic and isotherms adsorption parameters are reported. The synthesized resin can achieve a capacity of Pb(II) adsorption higher than 13.8 mg g-1, showing a good alternative for its future use in the treatment of water containing toxic metals in trace concentrations.