Removal of lead by exopolysaccharides from Paenibacillus peoriae strainTS7 isolated from rhizosphere of durum wheat

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Description
This work aimed to study the removal of heavy metal ions in aqueous solution by extracellular polysaccharides (EPS) extracted from bacterial strain coded TS7. The 16S ribosomal RNA gene sequencing allowed us to identify this strain as *Paenibacillus peoriae*. The EPS were defined by GLC-MS and ^{1}H NMR as a homopolysaccharides of fructose. The effect of contact time, initial metal ions concentration, mass of the polysaccharide and pH on the metal uptake were investigated by employing batch adsorption technique. The results showed that the maximum removal percentage was achieved at 180 min with an initial lead concentration of 100 ppm and the mass of 0.5 g L^{-1} EPS at pH 6.8. The maximal metal uptake (q_{max}) value in Dubinin–Radushkevich (D–R) adsorption isotherm of EPS was found 277.54 mg g^{-1}. The adsorption surface of the metal at surface of TS7 EPS was confirmed through scanning …