



A novel bioflocculant for chromium (Cr) and arsenic (As) removal: Extracellular polymeric substance (EPS) of *Pseudomonas fluorescens*

Ning He

Xiamen University, College of Chemistry and Chemical Engineering, Department of Chemical and Biochemical Engineering, China (hening@xmu.edu.cn)

Bioflocculants produced by microorganisms have advantages in removing heavy metals because of their environmental friendliness and biodegradability. In this study, the bioflocculant from a soil bacteria was investigated for its application in chromium (Cr) and arsenic (As) removal. The bioflocculant-producing strain was indentified as *Pseudomonas fluorescens*. It showed maximum flocculating activity of 2579.94 U/mL and yield of 4.84 g/L under optimal condition. With a fed-batch fermentation strategy, bioflocculant production was further enhanced by 32.6%. The bioflocculant was as extracellular polymer substance composed of 76.67% polysaccharides and 15.8% protein with a molecular weight of 117 kDa. It showed excellent capacities in heavy metal removal, 80.13 and 45.93 mg/g for chromium(Cr) and arsenic (As), respectively. The bioflocculant outperformed conventional adsorption materials and could represent a promising biotechnology for the remediation of environmental problems.