

Fabrication of amine and carboxyl enriched polysulfone-matrix biosorbent fibers using *Aeromonas caviae* JB-014 biomass and their application from Au (III) and Cd (II) recovery

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Present study reports the fabrication of chemically modified polysulfone-matrix biosorbent fibers (PBF) and their application for recovery of Au (III) and Cd (II) from aqueous solution. *Aeromonas caviae* JB-014 bacterial biomass discovered by Jeonju BioMaterials Institute was used as precursor for the fabrication of PEI-PBFs and PAA-PBFs. In order to enrich the chelating surface functional groups on PBF it was chemically modified by using polyethyleneimine (PEI) and polyacrylic acid (PAA) resulting PEI-PBF and PAA-PBF containing a large number of amine and carboxyl groups. For the fabrication of PEI-PBFs and PAA-PBFs, biomass-polysulfone mixture was extruded through a spinneret and the fibers that were coated with PEI and PAA sequentially by cross-linked with glutaraldehyde. Batch sorption experiments were conducted to evaluate the maximum sorption efficiency of both biomass fibers. PEI-PBFs exhibited a maximum uptake of 663.7 mg/g for Au(III) and PAA-PBF showed a maximum uptake of 54.6 mg/g for Cd (II).