Biosorption and bioaccumulation of Cu (II) from aqueous solution



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BIOSORPTION AND BIOACCUMULATION OF CU (II) FROM AQUEOUS SOLUTION



Book Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | using Mesorhizobium amorphae strain CCNWGS0123 isolated from mine tailing | Our studies showed that both dead and live cells of M. amorphae CCNWGS0123 are effective absorbents for copper removal from aqueous solution. The removal of copper increased significantly by increasing the pH up to 5.0, agitation speed 150 rpm and temperature 28°C. Equilibrium was reached within 30 min. The absorption isotherms could be well fitted by the Langmuir equation followed by the Freundlich equation. The highest removal of initial copper concentration was achieved at a dosage of 100 mg/L and the highest biosorption capacity was found at an initial concentration of 0.5 g/L Cu (II). Fourier transform-infrared spectroscopy (FT-IR) analysis indicated that many functional groups, such as O-H, N-H, C-H, C=O, -NH, -CN, C-N, C-O, amide (-I, -II, -III), and unsaturated alkenes, alkyls and aromatic groups on the cell surface, were involved in the interaction between CCNWGS0123 and Cu ion. Scanning electron microscope (SEM) results showed deformation, aggregation and cell-surface damage due to the precipitation of copper on the cell surface. Energy Dispersive X-ray Scanning (EDX) showed three distinct peaks at 1.1 keV, 8.1 keV and 8.9 keV, implying that copper ions have been absorbe | Format: Paperback | Language/Sprache: english | 155 gr | 220x150x5 mm | 104 pp.

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