

Enhanced Biosorption of Heavy Metal Ions by *Saccharomyces cerevisiae*-expressed tadpole ferritin

최순범, 원성욱, 한민희, 윤영상*
전북대학교
(ysyun@chonbuk.ac.kr*)

Microorganisms are known to remove heavy metal ions from water. And recombinant DNA technology offers the possibility of improving the metal binding capacity of the microorganisms. In this study, *Saccharomyces cerevisiae* was engineered to express ferritin, a ubiquitous iron storage protein, with the major heavy-chain subunit of tadpole ferritin. The yeast-expressed tadpole ferritin was pretreated by 1 N HNO₃ solution for replacing the natural mix of ionic species with protons. The protonated biomass was washed several times and dried in an oven. Biosorption of cadmium and iron on the recombinant yeast was higher than wild type yeast. And the pH of the solution strongly affected the degree of biosorption of the heavy metals. Desorption efficiency and kinetics were also investigated. This research showed that recombinant DNA technology can be applied to dead microorganisms so that the microorganisms are used in the removal of heavy metal ions from wastewaters.