

ABSTRACT

M. Sc. Thesis

**THE INVESTIGATION OF SEPERATION AND PRECONCENTRATION
CONDITIONS OF HEAVY METAL IONS BY SOME BACTERIAS IMMOBILIZED
ON SOLID SUPPORT**

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In this thesis, silicagel has been used as a support material, immobilized with *Anoxybacillus flavithermus HBB 134*. Pre-concentration conditions of Cu^{2+} and Cd^{2+} elements are researched with solid phase extraction method by using the resulting adsorbent. The determination of these metals was made by inductively coupled plasma atomic emission spectrometer (ICP-AES). In this study, the effects of the amount of bacteria immobilized on silicagel, the pH of solution, types and volume of eluent, and volume of solution on the recovery yields of the elements were investigated and optimum conditions have been determined. The recoveries of Cu^{2+} and Cd^{2+} by *Anoxybacillus flavithermus HBB 134* immobilized silicagel were obtained as %97.58 and %95.57, respectively. The adsorption capacity of *Anoxybacillus flavithermus HBB 134* immobilized silicagel was investigated and adsorption capacities of Cu^{2+} and Cd^{2+} were determined as 3.09 mg/g, 7.73 mg/g, respectively. The proposed method was applied to tap water samples for the determination of the Cu^{2+} and Cd^{2+} . Relative Standard deviation and relative error were found as about 6% and 7.5% respectively for tap water samples.

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