BIOLEACHING OF ÇAN-ÇANAKKALE COAL: TRACE ELEMENTS IN PYRITIC INCLUSIONS

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The concentrations of extracted trace elements were measured during bioleaching (Sulfolobus Metallicus, pH 1.1, 65 EC) of lignites from the Çan-Çanakkale region in western Turkey. The coal was pretreated in sulfuric acid to reduce acid leaching during the biocatalyzed oxidation, thereby focusing on dopants in abundant sulfidic inclusions. Pb, As and Mn were clearly associated with pyrite or inclusions of other sulfides in FeS₂. Ni, V, Zn and Cr showed an increasing association with aluminum (clays) at the expense of iron (sulfides). The Cu concentration decreased during bioleaching due to the extraction of alkali metal ions from clay minerals and the creation of adsorption sites with high affinity for Cu²⁺-ions. Cu adsorption on clay surfaces masked any dissolution of copper from sulfidic minerals. The above associations were discussed in terms of the formation of sulfidic inclusions in Çan-Çanakkale lignites.