Bioremoval Organic Sulfur of Kerman's Coal by Percolation Leaching

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Background & Objectives: Column biodesulfurization of coal is at the experimental stage and is influenced by many variables including temperature, pH, and particle size.

Methods: The bioremoval of organic sulfur by HM-2bacteria has isolated from Hashoni coal mine in Kerman (Iran) bioleaching column has been tested. These tests has considered in bioleaching column such as coal and isolated HM-2 bacteria from this mine. Particle size of coal was in the range 0.5-12mm. The rate of removal of organic sulfur by this bacteria in this column through production of 2-HBP in bioleaching solution as a final material by Gibb's reagent has been considered. The bacteria cell number in the solution was determined by direct counting , using a Thoma chamber with an optical microscope. The pH of the cultural suspension was monitored with a pH meter.

Results: The result show that the rate of removal of organic sulfur at the first days has increased and the increasibility rate of 2-HBP in bioleaching solution that is toxicity for bacteria cause had decreased removal the rate of organic sulfur of coal by bacteria. This event can decrease the bacteria cell number in the bioleaching solution.

Conclusion: The HM-2 bacteria can removal 21% from organic sulfur in a period of 40 days, for a particle size of 0.5-12mm.

Keywords: Bioremoval; Kerman; Coal; Percolation Leaching