Title : Investigation of Bacterial Communities in Acid Mind Drainage and Isolation of Acid-Tolerant Microbes for Acidic Gypsum Treatment

Author(s) :

1. Nepal Chuenpibool. **Student ID :** 640515014
2. **Student ID :**
3. **Student ID :**

Major : Environmental Science.

Advisor(s) :

1. Dr. Nuttapol Noirungsee
2.
3.

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ABSTRACT

Acid Mine Drainage (AMD) is extremely harmful to the environment because of its polluting potential and its detrimental impact caused by very low pH levels and high amounts of heavy metals. This study focuses on analyzing bacteria found in AMD and investigates their possible use in the bioremediation of acidic gypsum. Using traditional culturing and selective media, acid-tolerant microorganisms were isolated, and their identity was confirmed via biochemical and molecular techniques. To obtain insight into the bacterial diversity present in AMD, the composition of microbial communities from the AMD sites and river water were compared. These acid neutralizing microorganisms were evaluated in artificial gypsums to find out their potential application for the treatment of mitigation of industrial acidic waste. With this knowledge, one approaches the existence of extreme environments through the role of acidophilic microorganisms in environmental remediation.

This research advances the implementation of biological approaches to manage waste with high acidity and the effects of AMD pollution.

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