THE USE OF MICROORGANISM IN THE PROCESS OF EXTRCTING RUTILE FROM ILMENITE

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Abstract

Bioleaching has been suggested as an alternative to traditional mining techniques in extraterrestrial environments because it does not require wide infrastructure and bulky hardware. In situ bioleaching of oxide minerals, such as those found in nature, has been proposed as a feasible alternative to traditional extraction techniques that require either extreme heat and/or substantial chemical treatment.

In this study, it was focused on investigating the bacterial and fungi leaching of ilmenite ($FeTiO_3$) in aqueous environments under different pH conditions. The biological leaching experiments were conducted using bacteria, and fungi. Those Microorganisms, which were taken from Pulmudai beach area, were extracted and both strains were able to grow in the PD and NA media.

According to the AAS results, F2 fungi strain has leached more iron than other fungi strains, and B5 bacteria strain has leached more iron than other bacteria strains. Finally, most of bacterial and fungi strain media has increased their pH values than their initial ph.

Iron leaching rate of both PD controller sample and NA Controller sample, is considerably lower than the other samples. It was emphasis that the microorganisms are directly contribute for the increasing of the iron leaching rate.