USE OF NON-SPECIFIC BACTERIA IN BIOSOLUBILISATION PROCESSES

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Bacillus megatherium, isolated from soil, is used especially in genetic and enzimatic studies. Its use in geochemical investigations like non-specific bacterium (GAVRILOAIEI et al., 1998) may be an interesting alternative of actual biotechnologies.

The use of the *B. megatherium* strain (cultivated in a nutrient medium containing molasses as a source of carbon and energy) in leaching processes lead to some good results in the biosolubilisation of some ionic metals from a sulphide concentrate and a phosphatic rock (GAVRILOAIEI et al., 1998). The solubilisation of ionic metals (Fe, Co, Cu, Zn, Ca) is due to the formation of a weak acidic medium and of the secretion of different amino acids by the bacterium (alanine, serine, glycine) which act like complexing agents for the analysed ions (BURGSTALLER & SCHINNER, 1993). The study of the influence of time on the phosphatic rock solubilisation show a considerable yield in the first 14 h from the beginning of the experiment for Fe, Co, Ca, P, while for the other cations the process is slower.

The presence of some trace elements in the analyzed solutions leads to the conclusion that the non-specific bacterium is also capable to mobilise other metallic cations. The use of the bacterium in biosolubilisation processes is one of the future challenges for ionic metal recovery from mine or waste waters, sterile dumps or in soil bioremediation processes.

References

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