BIOCOAGULATION AND ITS POTENTIAL APPLICATIONS FOR GRAPHITE BIOPROCESSING

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Abstract

The technical relevant sorting processes like density, magnetic or electrical separation and flotation, require a narrow particle-size range for a sufficient selectivity in order to eliminate overlapping effects. Since the rapid decrease of the mass forces and increase of the surface energetic state with decreasing particle size the well-known sorting processes are not applicable to an effective separation of particle sizes smaller than 10 mm. Flotation cell is common in Graphite industry to upgrade its carbon grade and it used to upgrade over 80 % Graphite in Sri Lanka. Pyrite is a major impurity in Sri Lankan Graphite and it remove as lumps with graphite.

Three fungi were isolated from Bogola graphite mine and *Saccharomyces cerevisiae* was used to biocoagulation process. Isolated fungi were named as F1, F2 and F3. Ash content was analyzed to determine the carbon grade of graphite. Furthermore, biocoagulation was tested to 40 μm, 56 μm and 72 μm particle sizes. All three fungi F1, F2 and F3 were given over 99% carbon recovery grades. Among them, highest carbon recovery grade obtained from F1 fungus. The efficiency of biocoagulation decrease with the increment of particle size and maximum coagulation was observed in 40 μm.

Key Words: Graphite, Biocoagulation, Fungi