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(57) Abstract :

Disclosed is a method for bioleaching iron from minerals and utilizing the bioleached iron as a catalyst in Fenton's oxidation process for degradation of synthetic dyes in water that includes acclimatizing a bacterial strain with the mineral from that iron extraction is to be carried out and optimizing operational conditions in the bioleaching process, leaching iron from the mineral using the acclimatized bacterial strain at pH 3.0 – 3.5, shake flask speed of 160 - 180 Revolutions Per Minute, with pulp density of 2.5 – 5%, and temperature of 20- 40°C, quantifying and storing the leached iron for utilizing as a catalyst in the Fenton's oxidation process, adding the leached iron catalyst to contaminated water to be treated, investigating catalytic role of the bioleached iron catalyst for degradation of synthetic dyes such as methylene blue, rhodamine B, crystal violet, and safranin in water. <>

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