

# **Analysis on the Cells Growth Dynamics of *Acidithioacillus ferrooxidans* at Adaptation to High Substrate Concentrations**

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*Acidithioacillus ferrooxidans* is an autotrophic, acidophilic, mesophile occurring in single or occasionally in pairs or chains, depending on growth conditions. Among the group of *Acidithiobacillus*, *A. ferrooxidans* has emerged as an economically significant bacterium in the field of leaching of sulfide ores. The discovery of *A. ferrooxidans* led to the development of a new branch of metallurgical sciences called "biohydrometallurgy," which deals with all aspects of microbial mediated extraction of metals from minerals or solid wastes and acid mine drainage. This work is a part of studies on the bacterial physiology in regimes of cultivation in media with high substrate concentrations. It aims to evaluate with statistical significance similarity, or differences in biomass experimental curves. Three series of experiments were elaborated for studying the influence of high concentrations of ferrous ions. The bacterial growth was studied by samples, taken from the cultural media throughout the cultivation process, at hours, significant for different stages of periodic cultivation of the strain. The probes were processed using the method of limited dilutions and the cells were grown on solid medium in BIOCENTER 2001 for 25 days, and developed colonies were counted. The experimental data show some statistically significant differences in the studied parameters measured in different cultural media at the beginning and last phases of culture growth.