

Differential protein expression during growth of *Acidithiobacillus ferrooxidans* on ferrous iron, sulfur compounds, or metal sulfides

Ramírez, Pablo

Guiliani, Nicolas

Valenzuela, Lissette

Beard, Simon

Jerez, Carlos A.

A set of proteins that changed their levels of synthesis during growth of *Acidithiobacillus ferrooxidans* ATCC 19859 on metal sulfides, thiosulfate, elemental sulfur, and ferrous iron was characterized by using two-dimensional polyacrylamide gel electrophoresis. N-terminal amino acid sequencing and mass spectrometry analysis of these proteins allowed their identification and the localization of the corresponding genes in the available genomic sequence of *A. ferrooxidans* ATCC 23270. The genomic context around several of these genes suggests their involvement in the energetic metabolism of *A. ferrooxidans*. Two groups of proteins could be distinguished. The first consisted of proteins highly upregulated by growth on sulfur compounds (and down-regulated by growth on ferrous iron): a 44-kDa outer membrane protein, an exported 21-kDa putative thiosulfate sulfur transferase protein, a 33-kDa putative thiosulfate/sulfate binding protein, a 45-kDa putative capsule polysaccharide export protein,