

Partial removal of lipopolysaccharide from *Thiobacillus ferrooxidans* affects its adhesion to solids

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Conditions for the partial removal of lipopolysaccharide (LPS) from *Thiobacillus ferrooxidans* are described. Raising the pH of the solution containing the cells from pH 1.5 to pH 6.8 to 8.0 releases about 50% of the LPS without cell lysis. The release of LPS begins at pH 3.5, and it was not affected by EDTA concentration. Partial removal of LPS exposed higher amounts of a 40-kDa outer membrane protein in the bacteria, as detected by a dot immunoassay employing an antiserum against the *T. ferrooxidans* surface protein. This higher protein exposure and the reduced LPS content increased the hydrophobicity of the cell surface, as determined by an increased adhesion (50%) to hydrophobic sulfur prills and ¹⁴C-dodecanoic acid binding (2.5-fold) compared with control cells. In addition, adhesion of radioactively labeled microorganisms to a sulfide mineral was inhibited (40%) in the presence of previously added LPS. Our results suggest that not only LPS but also surface proteins probably play im