

Cultures of Fe-accumulating microorganisms living in weathered volcanic ash deposit

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Fe-accumulating microorganisms living in weathered volcanic ash deposit were examined by TEM-EDX, and were isolated and incubated in 9K media with and without Fe²⁺. TEM observation of the ash sample revealed presence of spherical and rod-shaped bacteria and fungi fragments surrounded by irregular aggregates of Fe, Al, and Si rich materials on the external cell-wall surface, and sometime concentrated in Fe in the internal cell. After incubation in media containing Fe²⁺, bacteria produced crystalline Fe-minerals on the external cell-wall surface, whereas noncrystalline ferrihydrite-like material precipitated on the surface of fungi. These results suggest that chemical condition of Fe-minerals formation may be different depending on microorganisms.