

Si-biomineralization of the unicellular red alga, *Cyanidium caldarium*, in acidic hot springs

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The acido- and thermo-philic unicellular red alga, *Cyanidium caldarium*, is a common member of microflora in green biomats at acidic hot springs, Japan. Green biomats are widely distributed over the face of the falls, around the spouts of hot spring, along the margins of hot-spring pools and outflow channels under the acidic (pH 1-3) and high temperature conditions (30-60 degrees centigrade). *Cyanidium caldarium* in green biomats has silica crusts on the cell surface. Microbial cultivation experiments revealed that microbial community was associated with the formation of banded biomats. This association with microbes and silica has the potential to provide significant insight into the multidisciplinary field that spans both life and materials.