

ABSTRACT
SPELEO BRAZIL 2001
Brasília DF, 15-22 de julho de 2001

13th International Congress of Speleology
4th Speleological Congress of Latin América and Caribbean
26th Brazilian Congress of Speleology

Role of Bacteria in the Growth of Cave Pearls

Michał GRADZIŃSKI

Institute of Geological Sciences, Jagiellonian University, Oleandry 2a, 30-063 Kraków, Poland,
e-mail: gradzinm@ing.uj.edu.pl

The growth of micritic cave pearls have been studied based on ones collected in Perlova Cave (Slovakia). The pearls display rough surfaces and irregular internal lamination. Several living bacteria have been detected inside the biofilm which covered still growing cave pearls. These bacteria produce organic matter from inorganic, gaseous CO₂ dissolved in water and hence cause oversaturation with respect to calcite within the bacterial surroundings. Thus calcite precipitation is due to the bacterial metabolism. SEM investigations indicate that the precipitation proceeds upon the surfaces of the bacterial cells. This process results in mineral replicas of bacterial cells and finally causes almost complete obliteration of primary microbial structures. The bacteria uptake preferentially ¹⁶O and cause relative enrichment of heavier isotope (¹⁸O) in the bacterial surroundings and in precipitating calcite.