

TRANSITION ELEMENTS IN TABULATE CORAL SKELETONS: SEAWATER VS. SEDIMENT

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The Givetian scolioporids of this study originate from dense and massive micritic rocks. Marine cements, which are dull in appearance using the CL-microscopy, filled the cavities of the skeleton. Limestones were not heated over 150 °C and are practically undeformed.

The annual and intra-annual dense bands have slight brownish color hue. These zones correspond to decreased coral growth and correlate also with pore galleries. Scolioporids have quite stable although condensed structure of increments (Fig. 1). Other tabulate corals (caliaporids, a.o.) produce much more chaotic rhythms. Scolioporids are relatively euryfacial and their nutrition must be specific. These corals seem to be reliable recorders of essential changes in oceanic seawater (Hladil 2002).

The high abundance of Fe is typical for these dense bands. Concurrently are elevated also concentrations of many other transition elements (such as Ti, Co, Cu, or Mn, Ni, Y, a.o.) and these elevated TE abundances correspond to strong anomalies of K. The latter fact suggests, that this trapped and skeleton-inbuilt material can be derived from extremely fine inorganic flocculent material in seawater (~ background sedimentation). The concentrations of Sr in dense bands are $\times 2$ smaller than in light bands and cements (Fig. 2). However, the increased concentrations of V (about 30 ppm) are also in light bands. Vanadium distributions are partly disjoined from those of iron and, generally, can imply a significant organic uptake from decayed chlorophyll-bearing microalgae or cyanobacteria.

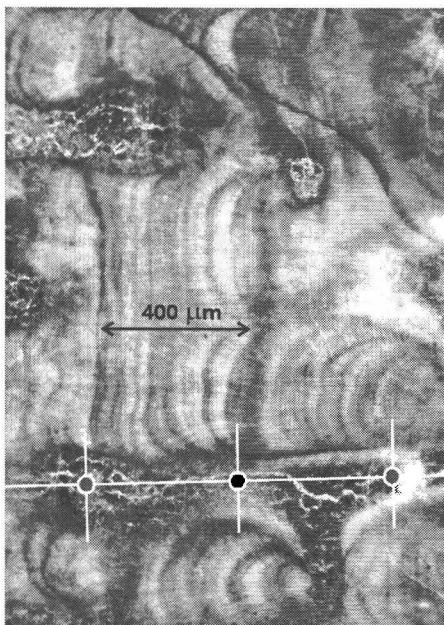


Figure 1. Thin and line-structured annual increments of *Scoliopora denticulata* skeleton (longitudinal section) from the Slavkov-2 borehole, 1258 m.

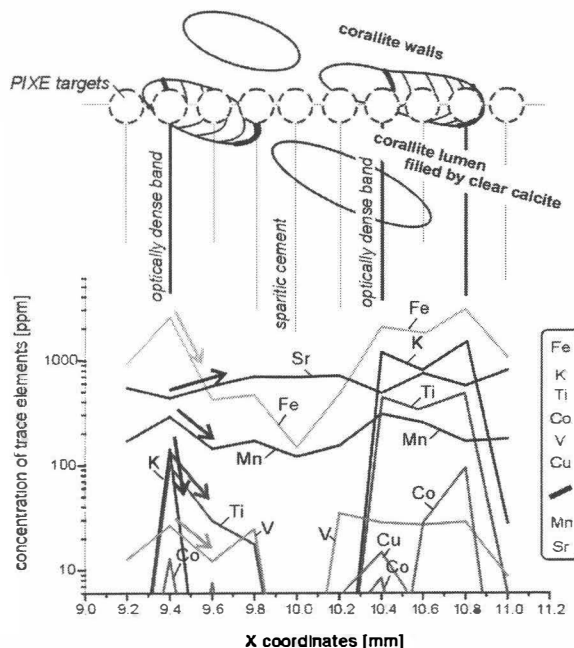


Figure 2. Variation of selected element abundances measured by PIXE in longitudinal section of *Scoliopora crassa* from the Nitkovice-2 borehole, 1702 m.

Reference: Hladil, J. (2002): Intra-annual variability in skeletal growth of the Devonian tabulate coral *Scoliopora*. - Geological Society of Australia Abstracts 68 (First Internat. Palaeont. Congress, Sydney, July 6-10, 2002), 77-78.

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