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STRUCTURE AND ENVIRONMENT OF TABULATE CORAL ASSEMBLAGES FROM THE MIDDLE DEVONIAN OF THE EIFEL HILLS (RHENISH SLATE MOUNTAINS, GERMANY)

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A comparative study of branching tabulate coral-rich successions from the Middle Devonian (lower Givetian) of the Sötenich Syncline (Eifel Hills) is presented in terms of faunal composition, facies and controlling environmental factors. The tabulate fauna comprises 12 species: *Alveolites (Alveolitella) fecundus*, *Alveolites (Alveolitella) crassus*, *Scoliopora* cf. *denticulata*, *Scoliopora* cf. *serpentina*, *Celechopora devonica*, *Pachyfavosites polymorphus*, *Pachyfavosites tumulosus*?, *Thamnopora cervicornis*, *Thamnopora reticulata*, *Thamnopora irregularis*, *Roemerolites brevis*, *Roemerolites tenuis*. Each locality (Sötenich, Rinnen, Keldenich) is characterized by a different tabulate coral assemblage/association: *Celechopora-Argutastrea* assemblage (Keldenich), *Thamnopora-Roemerolites* assemblage (Rinnen), *Thamnopora-Alveolites-Spinatrypina* association (Sötenich). The assemblages/associations, forming local reef meadows, generally reveal dominance of certain taxa, which, together with low to moderate species numbers, result in low diversity. The branching tabulate corals mainly show a medial growth strategy (sensu Scrutton 1998) corresponding to an environment with: (a) non-consolidated soft-bottom substrate, (b) (episodically) elevated background sedimentation rate, (c) notable terrigenous influx, and (d) low water energy. However, facies types and variations in faunal composition point to differences in bathymetry and sediment input. The assemblages/associations occurred along a bathymetric gradient with the *Celechopora-Argutastrea* assemblage in a shallow subtidal setting (less than 10 m water depth), affected by a relatively strong terrigenous influx, presumably in combination with reduced salinity and elevated nutrient supply. The *Thamnopora-Alveolites-Spinatrypina* association was situated in a fully marine shallow subtidal environment (less than 20 m water depth), whereas the *Thamnopora-Roemerolites* assemblage occurred in a slightly deeper subtidal setting (between 20 and 50 m water depth) with constantly elevated background sedimentation rate.

References:

Scrutton, C.T. (1998): The Palaeozoic corals, II: structure, variation and palaeoecology.- Proc. Yorkshire Geological Society, **52**, (1), 1-57, Yorkshire.