

Scleractinian corals from the Lower Oligocene of the Eastern Alps, Austria: taxonomic composition, palaeoecology and palaeobiogeography---preliminary results

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In the Werlberg Member (Rupelian pro parte) of the Häring Formation (Eastern Alps), an assemblage of colonial corals of 12 species pertaining to 12 genera and 11 families was identified: *Stylocoenia carryensis* (Oligocene–Lower Miocene; Astrocoeniidae), *Acropora lavandulina* (Middle Eocene–Lower Miocene; Acroporidae), *Astreopora* sp. (Acroporidae), *Colpophyllia* sp. (Faviidae), *Dendropgyra intermedia* (Oligocene; Meandrinidae), *Caulastraea pseudoflabellum* (Middle Eocene–Oligocene; Merulinidae), *Symphyllia pseudomeandrites* (Lower Oligocene; Symphylliidae), *Pindosmilia ? brunni* (Oligocene; Stylophylliidae), *Actinacis rollei* (Upper Eocene–Oligocene; Actinacidae), *Pavona profunda* (Oligocene; Agariciidae), *Agathiphyllia gregaria* (Upper Eocene–Oligocene; Agathiphylliidae) and *Faksephyllia faxoensis* (Paleocene–Oligocene; Caryophylliidae). This is the first Oligocene coral assemblage reported from the Eastern Alps. The Werlberg Member accumulated during marine transgression onto a truncated succession of older carbonate rocks. The corals grew as isolated specimens and in open carpets mainly in protected shoreface settings punctuated by high-energy events. Coral growth forms comprise massive to sublamellar forms, and branched (dendroid, ramose) forms. Eleven taxa pertain to corals found elsewhere in (sub)tropical reefal and peri-reefal settings, but the caryophylliine 'shallow- to deep-water' coral *Faksephyllia* also is present. The presence of coral fragments that differ with respect to corallite integration and other skeletal features from the identified species suggests that the diversity of the original biocoenosis was higher.

The assemblage consists of stress-resistant coral genera widespread in the Eocene to Miocene of central and southern Europe, Central America, and Caribbean islands. On the species level, closest correspondence is with faunas of southern Europe, especially with the ones of northern Italy (Lessini shelf) and southern France. With respect to phylogenetic ancestry, the fauna consists of a mix of Mesozoic hold-over taxa with genera that appeared during the Paleogene. Comparison with Oligocene coral assemblages outside of the Alps suggests that, in the west-central Tethys, the northern limit of hermatypical coral growth became constricted from roughly 38°N palaeolatitude during the Rupelian to about 30°N latitude in the Chattian. Only during the Middle Miocene (Badenian stage) climatic optimum, oligotypic assemblages of stress-resistant corals grew again, and for the last time, in the area of the present Eastern Alps.