

Commensalism in the fossil record: Eunicid polychaete bioerosion on Pliocene solitary corals

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Some solitary caryophylliid (*Caryophyllia*, *Trochocyathus*, and *Ceratotrochus*) and flabellid (*Flabellum*) scleractinian corals from Pliocene of Western Mediterranean exhibit long groove-shaped bioerosional structures running along the surface of the thecae. They are epigenic structures produced by an episkeletozoan and therefore, they are described as Fixichnia. Here we propose *Sulcichnus* as a new ichnogenus, with three new ichnospecies (*Sulcichnus maeandriiformis*, *S. helicoidalis*, and *S. sigillum*) to name this traces. *Sulcichnus* is attributed to the activity of polychaetes. Similar structures are recently produced by *Lumbrineris flabellicola*, a symbiotic eunicid which maintains a commensalistic relation ship with solitary corals. In the fossil record, *Sulcichnus* occurs associated to shallow marine environments whereas their Recent counterparts are described on deep-marine corals. We interpret this as a consequence of a change in the environmental requirements of the coral/worm pair.

Key words: Scleractinia, Polychaeta, Eunicida, palaeoecology, bioerosion, commensalism, Pliocene, Mediterranean

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