

Palaeobiological and palaeoenvironmental significance of the Pliocene trace fossil *Dactyloidites peniculus*

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The radial trace fossil *Dactyloidites peniculus* occurs in a deep tier in totally bioturbated shoreface sediments of Pliocene age in the Stirone Valley, N Italy, together with *Thalassinoides* isp. and *Ophiomorpha nodosa*. Long, narrow shafts running from centre of the radiating structure and abundant faecal pellets in the radial structure were discovered. The trace maker of *D. peniculus*, probably a polychaete, deposited the pellets deeply in the sediment, probably for reinforcement of the tubes and a gardening of microbes for feeding. This trace fossil exclusively occurs within a narrow horizon at the top of a shallowing-up section interpreted as a high-stand system tract, below a discontinuity surface capped by finer sediments. *D. peniculus* was formed in soft sandy sediments under stable conditions related to the latest phases of the high-stand system tract. Therefore, it is a candidate for indication of similar environmental situations having a soft sandy, but stable sea floor.

Key words: Trace fossils, *Dactyloidites*, gardening, sequence stratigraphy, marine flooding, foredeep, Neogene, Pliocene.

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