TUBE STRUCTURE AND TAPHONOMIC FEATURES OF FOSSIL CIRRATULIDS FROM THE EAST PISCO BASIN (SOUTHERN PERU)

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Among the tube-dwelling polychaete worms in the family Cirratulidae, some species produce calcareous tubes preservable as fossils. Recent calcareous cirratulids are distributed in temperate and tropical environments, where they aggregate to form small reefs in shallow waters with normal salinity. Fossil records of cirratulid aggregates are however rare. Here we analyse the tube structure and taphonomic features of the cirratulid *Diplochaetetes mexicanus* (Wilson, 1986), reported from the Miocene of Peru, in the East Pisco Basin. There, the species forms dm-sized tube aggregates with pillow-, mushroom-, dome-like and tabular growth morphologies. Aggregates are formed by subparallel tubes adhering to each other. Tubes do not increase in diameter during growth and have a circular lumen with an average width of 1.3 mm. Transverse, concave upwards, double-layered septa occur inside some tubes. Optical and electron microscopy (SEM) analyses, coupled with epifluorescence observations, allow for detecting the tube biomineralization style. Tube wall is ca. 0.2 mm thick and is formed by a layer of very thin irregular micro-laminae. Sediment particles can be visible between tubes, cemented by biomicrites. Both the laminated wall and biomicrites in between show high fluorescence, reflecting their bio-mediated origin. The tubes exhibit different degrees of preservation. They vary from exquisitely preserved specimens, showing remain of the prismatic-like ultrastructure of the laminae and micrite-size crystals (finer than 4 microns) of the agglutinating biocement, to deeply diagenized specimens, showing rhomboedric dolomite crystals, growing on the original laminae and biomicrite. The present work aims at depicting the microstructure of the *D. mexicanus* and providing comparisons with the results obtained in previous studies.