



Nummulite bioperforations and palaeoenvironments in the middle Eocene of the Berici Mts. (N Italy)

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A quantitative analysis of bioperforations on several tests of *Nummulites lyelli* and *N. discorbinus* (B forms) has been performed on four large polished slabs (90 x 45 cm) coming from different levels of middle Eocene shallow-water limestones.

About 80% of *N. lyelli* B and 15% of *N. discorbinus* B show some type of bioperforation, indicating a vast activity of boring organisms in the life environment. Moreover, encrusting of the same tests by coralline algae and spirorbid worms is common.

Seven different types of bioperforation were distinguished: large-irregular, small-irregular, total-irregular, spiral, small circular, transversal, and paraboloid. The spiral and small circular borings were attributed to *Trypanites helicus*, according to Görmus & Nielsen (2006). The transversal and paraboloid ones resemble *Oichnus* spp. (Görmus & Nielsen, 2006). According to Nielsen & Görmus (2004) *Trypanites helicus* is probably associated with nematod worms. The irregular borings (especially the large-irregular and total-irregular) are still problematic, but could tentatively be attributed to gastropods (Sliter, 1971).

The scarce abrasion and fragmentation of the bioeroded tests seems to point to a good degree of autochthony of the nummulite tests, with no or very limited lateral transport. Moreover, the percentages of bored tests are strikingly uniform in the different levels, even if the fossil assemblages show some variation and represent probably slightly different palaeoenvironments.

The bioperforations have a potential use to detect transport and reworking, since the sediment infilling could be either the same as surrounding or a different one. A careful analysis of this feature is therefore preliminary to the biostratigraphic use of the fossil nummulites.

References:

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