



Quantitative data about nummulite-rich sediments: first results from Pederiva di Grancona and Mossano sections, Middle Eocene (Veneto, Northern Italy)

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An extensive program of quantitative characterization of nummulite-rich sediments has been started with the aim to clarify the genesis of the biosedimentary structures known as nummulite banks.

First, a quantitative taxonomic analysis has been performed on a washed sample from the nummulite bank of Pederiva di Grancona (Bericci Mts., Veneto, Northern Italy; SBZ 17, early Bartonian age). 1448 A-forms of Nummulites have been observed and identified to the specific level: the results show a striking dominance of *N. lyelli*, 74.7% of the total number, accompanied by *N. striatus* (11.5%); the remaining specimens belong to *N. discorbinus*, *N. biarritzensis*, and *N. beaumonti*. The two dominant species were also measured to determine their size and shape; we found the mean diameter (D) of *N. lyelli* is 5.76 mm, the one of *N. striatus* is 4.25 mm. The diameter/thickness ratio (D/T) is 2.29 and 2.05 respectively. Therefore, the two species differ both in size and in shape, being *N. lyelli* larger and more robust than *N. striatus*; this has important consequences on the hydrodynamic behaviour of the tests, which was probably in some way different.

We also tried to test the A/B ratio in the bank and in the “normal” nummulitic limestones, to compare our results with the ones reported in the literature. To count the numbers of A- and B-forms, we used polished hand samples. On the smooth surfaces we drew small rectangles 5x3.8 cm (19 cm² each) to have standard reference areas, and counted all the visible specimens of nummulites. One sample (PRV 1) was from the same nummulite bank of Pederiva, the other four samples represent “normal” nummulitic limestones from the levels immediately over the bank (PRV 2-4) and from the Mossano section, some 10 km far from Pederiva and slightly younger (SBZ 18, late Bartonian). The A/B ratios show a neat difference between the bank (42) and the “normal” nummulitic limestones (86 to 348).

These quantitative results do not define the autochthonous vs. allochthonous nature of a nummulite bank. Instead, they provide an updated revision on the description and main characteristics of a nummulite bank. The obtained features, extended to a larger number of prepared and studied samples, will help to differentiate them from a “normal” nummulitic limestone.