

The ocean in a tank? – An actuopalaeontological approach on growth of larger foraminifera

EDER, W.¹, KINOSHITA, S.¹, WÖGER, J.¹, HOHENEGGER, J.¹, BRIGUGLIO, A.², FERRÁNDEZ-CAÑADELL, C.³

¹ Universität Wien, Department of Palaeontology, UZA II Geozentrum, Althanstraße 14, 1090 Vienna, wolfgang.eder@univie.ac.at, shunichi.kinoshita@univie.ac.at, julia.woeger@univie.ac.at, johann.hohenegger@univie.ac.at

² Universiti Brunei Darussalam, Department of Petroleum Geoscience, Jalan Tungku Link, Gadong BE1410, Brunei Darussalam, antonino.briguglio@ubd.edu.bn

³ Universitat de Barcelona, Departament d'Estratigrafia, Paleontologia I Geociències Marines, Martí Franqués, 08028 Barcelona, carlesferrandez@ub.edu

The focus of this ongoing study is the growth of four extant nummulitid taxa (*Cycloclypeus carpenteri*, *Heterostegina depressa*, *Operculina complanata* and *Palaeonummulites venosus*). Since the 1960's, when Rudolf Röttger started his cultivation experiment on extant nummulitids, no long-time cultivation experiments combined with a rigorous observation schedule have been attempted. While trying a new attempt, some consideration should be taken in account. Growth experiments in petri-dishes are not enough to simulate the complex environmental conditions larger benthic foraminifera (LBF) live in and in-situ observations of these microscopic mesophotic species would include very high equipment costs and might be still very risky. Therefore, in our approach, the so-called 'natural laboratory' evaluates their growth: manually selected specimens are taken from their natural habitat and are held in a large seawater tank under controlled environmental conditions (HOHENEGGER et al., 2014). Constant measurements of on-site water parameters are used to create a near-natural simulation of their original environment. Additionally continuous sampling of naturally grown specimens at fixed time intervals allows a direct comparison of the laboratory-cultured individuals with a control fauna, which is growing devoid of any human disturbance. After over 5 months of culturing larger foraminifera, first results support the original assumption, that the complex environmental factors influencing foraminiferal growth are not that easily replicated and emphasizes the need of a control fauna, when culturing foraminifera over long-time periods.

HOHENEGGER, J., BRIGUGLIO, A., EDER, W. (2014): The natural laboratory of symbiont bearing benthic foraminifera: Studying individual growth and population dynamics under natural conditions – In: KITAZATO, H. & BERNHARD, J. (Eds.): Experimental Approaches in Foraminifera: Collection, Maintenance and Experiments. – Springer book, Environmental Science Series, 13–28.