

Determination of longevities, chamber building rates and growth functions for *Operculina complanata* from long term cultivation experiments

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Operculina complanata was collected in 20 and 50 m depth around the Island of Sesoko belonging to Japans southernmost prefecture Okinawa in a series of monthly sampling over a period of 16 months (Apr.2014-July2015). A minimum of 8 specimens (4 among the smallest and 4 among the largest) per sampling were cultured in a long term experiment that was set up to approximate conditions in the field as closely as possible. A set up allowing recognition of individual specimens enabled consistent documentation of chamber formation, which in combination with μ -CT-scanning after the investigation period permitted the assignment of growth steps to specific time periods. These data were used to fit various mathematical models to describe growth (exponential-, logistic-, generalized logistic-, Gompertz-function) and chamber building rate (Michaelis-Menten-, Bertalanffy- function) of *Operculina complanata*. The mathematically retrieved maximum lifespan and mean chamber building rate found in cultured *Operculina complanata* were further compared to first results obtained by the simultaneously conducted "natural laboratory approach". Even though these comparisons hint at a somewhat stunted growth and truncated life spans of *Operculina complanata* in culture, they represent a possibility to assess and improve the quality of further cultivation set ups, opening new prospects to a better understanding of the their theoretical niches.