

A new pleurocystitid blastozoan from the Middle Devonian of the Eifel (Germany) and its phylogenetic importance

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Rich echinoderm fauna from the Middle Devonian of the Eifel (Rhenish Massif, Germany) has yielded specimens of the rare recumbent pleurocystitid rhombiferans. *Regulaecystis testudineus* sp. nov. extends the stratigraphic range of the pleurocystitids to the Eifelian (Middle Devonian). Specimens show a strongly inflated and ornamented theca, which is unusual for the European pleurocystitids. Phylogenetic analysis of all described pleurocystitid genera suggests a close relationship of *Regulaecystis* with the other Devonian genera. Results indicate that the degree of inflation and of ornamentation of the theca can be interpreted as convergences within the pleurocystitids due to environmental conditions (such as surface consistency, hydrodynamism). *R. testudineus* sp. nov. was living as a strict epibenthic vagile organism; lying on muddy soft to firm substrates in quiet to agitated shallow warm water environments.

Key words: Echinodermata, Blastozoa, Pleurocystitidae, *Regulaecystis*, evolution, palaeoecology, Eifelian, Devonian, Rhenish Massif, Germany.

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