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Suspected foraminiferan parasitism on a Late Cretaceous echinoid host recorded by the new attachment trace fossil *Solichnus aestheticus*

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A critical reassessment of foraminiferan parasitism on echinoid hosts, past and present, identifies all previous records as doubtful and circumstantial evidence as being limited to possible foraminiferan bioerosion traces on a Late Cretaceous *Echinocorys perconicus* host from Northern Germany. Here, we report on a second type of putative foraminiferan attachment trace fossils found on a Late Cretaceous *Echinocorys jaekeli* from the Danish Basin, and establish the new ichnogenus and ichnospecies *Solichnus aestheticus* within the ichnofamily Centrichnidae. These delicate sun-shaped etchings are diagnosed as bowl-shaped circular depressions, wider than deep, from which numerous open canals radiate in a meandering fashion, ramify, and thin out. The canals indicate a mutual avoidance pattern with those of neighbouring specimens and they circumvent the areoles of the echinoid's primary tubercles. We interpret the central depression as anchoring site of a foraminiferan test and the radiating canals, formed right at the interface of the stereom and epithelium, as the work of its long and ramifying pseudopodia. The symbiotic relationship was probably of parasitic nature (sensu stricto), with the foraminiferan feeding on the organic tissue of the epithelium (epithelium browsing) and profiting from protection offered by the host's spines and defensive pedicellariae. The echinoid survived the infestation and formed skeletal regeneration textures that clearly identify the association as syn vivo. The high degree of specialisation required to infest an echinoid host and form the complex attachment trace might suggest that the pronounced rarity of the trace is not a case of a false host but of host specificity. The identity of the foraminiferan parasite remains unknown, although the bioerosion traces show some affinity to those of the extant species *Cymbaloporella tabellaeformis* and *Gypsina vesicularis*.

Key words: Echinoidea, *Echinocorys* , Foraminifera, 3D scanning, bioerosion, ichnotaxonomy, parasitism, trace fossil, symbiosis.

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