

CONULARIIDS AS A TOOL IN PALEOENVIRONMENTAL ANALYSIS

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Conulariids are conspicuous elements in Emsian sediments of the Devonian sequence (Ponta Grossa Formation, Jaguariaiva Member), from Parana Basin. Their preservation seems to be associated to unusual preservational circumstances. In fact, the fossiliferous sediments rich in conulariids were deposited in a platformal environment, under transgressive conditions in a muddy epeiric sea, punctuated by storm events. The exam of 27 oriented blocks (~5400 cm³) of siltstone or mudstones, including 29 specimens of conulariids, indicates that they are preserved according to two preservational modes: 1- vertically oriented conulariids (aperture-up, 90-70 degrees to the bedding plane) in massive or less bioturbated siltstones, and 2- inclined or horizontally oriented conulariids in a completely bioturbated siltstone or mudstones, rich in Zoophycos. Vertically oriented specimens are interpreted as autochthonous elements, indicating the abrupt burial of living invertebrates. Thus, an attached epifaunal mode of life is inferred for these specimens. Horizontally oriented specimens correspond to disrupted elements, particularly by the biological activity within the substrate, during and after the rapid sediment deposition, associated to storm events. Specimens vertically preserved directly adjacent to horizontally oriented conulariids in zones of intense sediment bioturbation support this idea. In this case, even the horizontally oriented specimens are reliable indicators of changes in siliciclastic accumulation rates, in tempestite proximality, and postmortem alteration by biological agents, specially when the inorganic primary sedimentary structures are lacking or were completely destroyed or obliterated by the biological activity in the substrate. The Jaguariaiva Member sediments rich in conulariids are interpreted here as tempestite beds.