



GEOSUDESTE 2015

14º Simpósio de Geologia do Sudeste

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26 a 29 de outubro de 2015 | Campos do Jordão - SP

A IMPORTÂNCIA DOS RECURSOS NATURAIS NA ECONOMIA BRASILEIRA

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INVERTEBRATE TRACE FOSSILS FROM THE SOUSA BASIN (EARLY CRETACEOUS): MICROBIAL ROLE

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The preservation of invertebrate continental trace fossils are generally considered to be controlled by grain size, sediment consistency and humidity of the substrate, but not by its biosedimentological aspects. In the Sousa Basin (Lower Cretaceous, Northeastern Brazil), although the preservation mode of invertebrate trace fossils has been attributed to the physico-chemical aspects of the environment, type of substrate, and the behaviour of the producer, we recognized the importance of microbial mats and biofilms for enhancing their preservation potential. Biofilms may allow the substrate stabilisation against flowage frictional forces, increasing the preservation. The Sousa Basin lithologies are strong reddish coloured, typical of sediments that accumulated in oxidizing terrestrial environments revealed also by facies analyses. In the Antenor Navarro Formation the invertebrate trace fossil assemblage is constituted by epistratal trails corresponding to feeding (fodinichnia) and grazing (pascichnia) traces. The invertebrate ichnoassemblages from the Sousa Formation are found in a succession of strata characterized by siltstones and claystones. Feeding (fodinichnia), crawling (repichnia), resting (cubichnia) and habitation (domichnia) traces are represented in the overall invertebrate ichnoassemblage. Field observations on the stratal surfaces where these traces occur, show corrugated textures which are interpreted as microbially induced sedimentary structures. Petrographically, very thin to thin microbiolaminations can be observed, as well as fragmented biofilms and dispersed microbial filaments, which corroborate the presence of ancient biofilms to slender microbial mats. Cohesiveness of the substrate would result from the presence of psammic cyanobacteria in endobenthic microbial mats, interwaving sand and silt grains. This cohesiveness could also result from an early lithification induced by these microbial mats, allowing in this way the preservation of invertebrate trace fossil.

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Palavras-chave: Sousa Basin, Trace fossils, microbial mats.