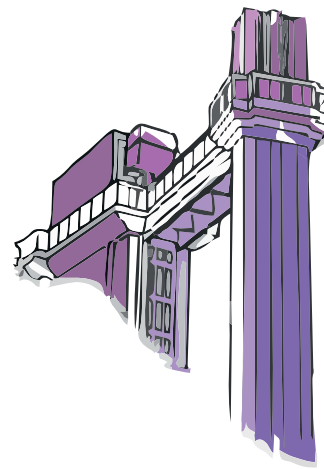


Boletín de la Asociación Latinoamericana de Paleobotánica y Palinología

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XIV IIPC
X IOPC

*Palaeobotany and Palynology:
towards new frontiers*

Salvador (Brazil) 2016

**XIV International Palynological Congress
X International Organisation of Palaeobotany Conference**



Asociación
Latinoamericana
de Paleobotánica
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Salvador, October 2016

Preliminary analysis of sedimentary organic matter of the interval Aptian-Turonian (Cretaceous) of the Pernambuco Basin, northeastern Brazil

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In order to recognize the changes in depositional paleoenvironments, palynofacies analysis was carried out on 17 samples from the one well section (1-LABIO-PE3) drilled through the Cabo and Estiva formations in the Pernambuco Basin. Samples were prepared using the standardized method of palynological preparation. The three main categories of particulate organic matter (POM), viz. phytoclasts, amorphous organic matter (AOM) and palynomorphs were identified and counted. The stratigraphic distribution of the constituents was used to infer the paleoenvironment changes based on the existing sedimentological interpretation. The section is conspicuously dominated by phytoclasts (non-opaque non-biostructured and opaque particles). In the base part of the section (Cabo Formation), the almost 100% of opaque particles indicates a subaerial exposure or, at least, extremely shallow conditions. The AOM identified is mainly derived from macrophyte tissues after amorphization process. The presence of marine elements (dinoflagellate cysts and microforaminiferal linings), especially in the upper part of the section, indicates a marine environment. The dominance of phytoclasts reflects the continuous terrestrial influx throughout the section. However, from the base to top, an increase in marine influence or change in distance of fluvial-deltaic source areas.

Keywords: palynofacies, paleoenvironment changes, Cretaceous, Pernambuco Basin, Brazil

Brachyphyllum obesum Heer from the Crato Formation, Brazil, and its botanical affinity to the conifer family Araucariaceae

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Since the beginning of paleobotanical studies in the late Aptian Crato Formation flora and several years later, fossils assigned to the genus *Brachyphyllum* Brongniart, has been recognized as the most abundant fossil plant specimens from this geological unit. In this laminated limestones of lacustrine origin, deposited under arid to semiarid environmental conditions, two different species of *Brachyphyllum* can be found, *B. obesum* Heer, described originally from the late Aptian to early Albian from Portugal, and *B. castilhoi* Duarte, recorded originally for the Romualdo Formation, an Aptian-Albian geological unit, occurring in the same basin (Araripe basin), but stratigraphically above the Crato Formation. Botanical affinity for *Brachyphyllum* has not been adequately discussed and no consensus has been obtained since its vegetative morphology is common to many Mesozoic conifers of the families Araucariaceae and Cheirolepidiaceae, also because of the absence of organic connections of twigs with more confident reproductive organs to define familiar affinities. By histological analysis through SEM of epidermal and stomatal cells as well as vascular system features as tracheid and cross-field pittings, botanical affinities of *B. obesum* to the family Araucariaceae from the Crato Formation is demonstrated and discussed. Additionally is suggested an organic connection of *B. obesum* leaves to a female cone bearing bract-scale complexes of the species *Araucarites vulcanoi* Duarte, another fossil plant commonly found in Crato Formation Flora, corroborating the idea of its Araucarian botanical affinity. [Contribution to FAPESP Project 2008/02884-5].

Keywords: *Brachyphyllum obesum*, Crato Formation Flora, Araucariaceae, late Aptian, histology