

Paleofloristic reconstruction based on the palynological assemblages recovered from lacustrine Villa Alegria (Puebla) and Cerro Prieto (Oaxaca) of the Tehuacan-Cuicatlan Valley, Mexico

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A reconstruction of the Pliocene-Pleistocene paleoflora and a biostratigraphic correlation between rocks from the lacustrine Villa Alegría (Puebla) and the travertine Cerro Prieto (Oaxaca) localities in the megadiverse Tehuacan-Cuicatlan Valley were made. A total of 94 samples from eight sections outcrop travertine were collected and were processed for standards methods. Paleopalynological assemblages registered 4,957 pollen grains and spores of 212 taxa. By means of multivariate analyses we confirm the presence of regional cloud forest, pine-oak forest, as well as gallery forest along watercourses. Additionally, the presence of the tropical deciduous forest and chaparral are reported, with some floristic elements now present in the desert scrub, suggesting semiarid conditions. Biostratigraphic Villa Alegría correlations showed two biozones based in the abundance of *Alnus* sp. and *Fraxinus* sp. On the other hand, correlation among Cerro Prieto sections showed one important biozone based in *Pinus* sp. Finally, correlation between Villa Alegría and Cerro Prieto showed one abundance biozone based in *Fraxinus* sp.

Keywords: Pliocene-Pleistocene, travertine, paleoflora, correlation, abundance biozones.

New Contribution to the palynology of the São Paulo Basin, Paleogene of the State of São Paulo, Brazil

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Many palynological studies have been carried out in the southeastern Brazilian Cenozoic rift basins to determine climate change and to reconstruct local and regional paleofloras during the Paleogene and Neogene. At the São Paulo Basin, these studies are clustered at the northwestern, northern and northeastern areas and there is still a lack of data from the southern region. The current study is based on the analysis of 16 palynological samples obtained from four adjacent geotechnical drill holes made in the municipality of São Bernardo do Campo, at the southern area of São Paulo Basin. These samples were chemically treated according to standard methods used for Paleogene and Neogene sediments. The slides were mounted in entellan mounting medium and analyzed in light microscopy. The identified palynomorphs show the occurrence of algal spores (*Catinipollis geiseltensis* Krutzsch 1966, *Mougeotia*-like, *Spirogyra*-like), bryophytic and pteridophytic spores such as trilete grains (*Deltoidospora*, *Cicatricosisporites*), monoletes (*Laevigatosporites ovatus* Wilson & Webster 1946, *Gleichenidites*, *Verrucatosporites*) and *Azolla* massulae. There are also gymnosperm pollen (*Dacrydiumites florinii* Cookson & Pike 1953, *Podocarpidites*, *Ephedripites*) and angiosperm pollen such as *Corsiniipollenites*, *Ulmoideipites krempii* Anderson 1960, *Arecipites*, *Monoporopollenites annulatus* Jaramillo & Dilcher 2001. This palynoflora suggests a lake or a flooded area as the depositional environment due to the dominance of algae and other palynomorphs typically found in aquatic vegetation (e.g. Onagraceae). There is relative abundance of pollen grains of gymnosperms, which are anemophilous. The occurrence and abundance of this gymnosperm record is a broadly observed feature at the southeastern Brazilian Cenozoic rift basins, especially in sediments from upper Eocene to Oligocene. Associated to the gymnospermous taxa, the observed abundance of *Azolla* massulae suggests a colder climate, related to the period of the formation of the Antarctic Ice Sheet and the opening of the Drake Passage.

Keywords: São Paulo Basin, Tertiary, palynoflora, paleoclimate