



## **Epidermal structure and taphonomy of *Pagiophyllum* Heer in the Mesozoic beds from the Paraná Basin, Río Grande do Sul, Brazil**

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In the Upper Triassic-Lower Jurassic (?) beds of the Caturrita Formation (or Santa María II Sequence), Paraná Basin, southernmost Brazil, plants, fish scales, insect wings and conchostracans were found. The plant fossils come from lake deposits, one of the various lake stages registered in the lower Mesozoic of the area, reflecting climatic (water/ sediment supply) and tectonic (basin subsidence) episodes. The plant assemblage includes impressions of sterile and reproductive structures of gymnosperms (Bennettitales, Cheirolepidiaceae and/or Araucariaceae and primitive conifer woods, e.g., *Kaokoxylon zaleskyi* (Sahni) Maheshwari). In this contribution conifer branches with authigenic preservation and maintaining their three-dimensionality and epidermal features were examined in SEM (Scanning Electron Microscope). The samples showed different organic structures that were compared with previously described fossil forms. The material shows that different preservation processes were involved. In the inner, immersed in the organic parts, iron hydrated oxides occur associated with small concentrations of magnesium, aluminum and silica. The external envelop that guarantees the preservation, is also formed by iron oxides and silicified compounds, associated with aluminum, calcium, potassium, and low concentrations of cerium and titanium. Epidermal cells have square shapes, straight and thick walls and are longitudinally oriented in relation to the leaf margins. The stomata complexes are arranged in one to three per row, generally also parallel aligned, rarely with a random and scattered position in the epidermis. They are separated by four to five epidermal cells in each row. The presence of five to seven subsidiary cells forming a uniform ring around the pore indicates a cyclocytic type of stomata. Stomata aperture is rounded and of variable size, between 20 and 24µm. Guard cells are not visible. All these aspects allow us to assign the leaf branches to *Pagiophyllum* Heer, and to support a Late Triassic to Early Jurassic age.

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