

ROOF-SHALE FLORAS IN EOPERMIAN SOUTH BRAZILIAN COALBEDS: EVIDENCE OF THE TRANSITION ICE HOUSE TO GREEN HOUSE

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The Eopermian megafloras of the gondwanic sequence in southernmost Brazil are characterized mainly by elements of *Glossopteris* flora. By evaluating the parameters supplied by the megaflora associated with different sedimentary facies, it is become evident that the paleofloristic evolution was related to biostratigraphic, palaeocological and palaeoclimatic evolution. The homogeneous composition of the basal Eopermian floral assemblages, which are characterized mainly by shrub-like plants as *Botrychiopsis plantiana*, suggests the persistence of a rigorous climate. On the other hand, the dominance of *Rubidgea* and *Gangamopteris* associated with *Glossopteris* seems to indicate a gradual warming of climate, probably related with the waning of a global Carboniferous-Permian ice house stage. Pinnate glossopterids related to *Glossopteris* are common in roof-shales of coal bearing-strata. The sudden enrichment of herbaceous articulates, filicoids fronds and arborescent lycophyte trunks and stems suggested that this group of plants could be important elements in the original biomass of some peat-forming coals in South Brazilian Gondwana. Concerning lycophytes, this inference is in accordance with the dominance of lycophyte spores in coalbed assemblages, and with the suggested linkage between these spores and an arborescent habitat based on ultrastructural analyses of exine. It is important observe that the paleobotanical data allowed to indicate a mild climate at the time of deposition of roof-shale floras in the South Brazilian Gondwana. This assumption is in discordance with the inference of a cold temperate climate suggested before but is in accordance with the affirmation that the temperate areas of Gondwana throughout the Permian were certainly warmer than hypothesized by climatic models.