



Vegetation and climate during the Early Cretaceous in northern Gondwana (South America, Brazil)

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The late Aptian (approx. 112 – 115 Ma) fauna and flora of the Crato fossil Lagerstätte (northeastern Brazil) has been studied intensely. It is one of the few localities that is located in a near palaeoequatorial position and thus of great interest for climate reconstructions for the late Early Cretaceous. The lacustrine plattenkalk limestone contains a diverse, unusually preserved flora in that complete plants with roots, axes, attached leaves and flowers are preserved. The different taxonomic composition, growth mode and anatomy of these plants are presumably climate indicative: The near absence of ferns except for one single taxon *Ruffordia*, high diversity of gnetophytes and absence of ginkgophytes are characteristic and in contrast to floras of higher latitudes. Scale-like leaves in araucarian and cheirolepid conifers and reduced leaves and well developed tap roots among several gnetophyte genera are observed. Several of the angiosperms, mostly belonging to various magnoliids, grew small epetiolate coriaceous leaves with many glands, interpreted as etherial oil cells and a dense cover of trichomes. Venation density measurements on angiosperm leaves reveal a low respiratory potential. The preservation of the plant fossils can be only interpreted as a fast wash out during storm events, in a climate with periodically high rain fall. However, all the features discussed above are indicative for the ability of these plants to withstand periods of drought with no or little precipitation.