

Reconstruction of Upper Cretaceous paleoflora based on resin-derived biomarkers. Example from the North Sudetic Basin, Poland

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The Upper Cretaceous (Coniacian–Santonian) succession of paralic deposits (sandstones with siltstones and lignite intercalations) is exposed in Rakowice Małe, an inoperative quarry in SW Poland. A wide variety of outcropped lithofacies indicates various types of sedimentation: coastal, lacustrine, paludal and lagoonal [1]. However, due to the poor preservation of wood fragments within these rocks, a very good method to reconstruct palaeoflora is chemotaxonomy – the detailed biomarkers characteristic.

Due low maturity of organic matter (Ro values did not exceed 0.45%), certain organic compounds were preserved for tens of millions of years with an unchanged biological structure. Examples of such biomarkers are saccharides and sugar acids, indicating wood-decaying fungi origin [2]. Other group comprises diterpenes: chamaecydins, callitrisic acid, and ferruginol, commonly present in *Cupressaceae* resins. Simoneit et al. [3] shows that *Taxodium distichum* resin contains significant amounts of chamaecydins. The ecology of this plant is in line with depositional conditions described by Leszczyński [1] in Rakowice Małe.

Thus, we presume that lands surrounding North Sudetic Basin during Upper Cretaceous were inhabited mostly by trees of *Cupressaceae* family.

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[1] Leszczyński (2010) *Annales Societatis Geologorum Poloniae* **80**, 1-24. [2] Marynowski et al. (2019) *Int. J Coal Geol.* **209**, 51-61. [3] Simoneit et al. (2019) *Molecules* **24**(17), 3036.