

Plant megafossils and amber from the Upper Cretaceous of Vernasso (Friuli-Venezia Giulia, northeastern Italy)

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The most famous and richest Cretaceous plant assemblage of northern Italy has been reported at the end of the nineteenth century in the Vernasso quarry from limestone boulders contained inside a giant megabed from the lower Eocene Flysch of Julian Prealps, Friuli-Venezia Giulia Region, northeastern Italy. The plant assemblage was described by BOZZI in 1891, and since it has never been revised. The flora consists of conifers (*Araucaria macrophylla*, *Cunninghamites elegans*, *Cyparissidium gracile*, *Frenelopsis koenigii*, "*Sequoia*" *ambigua*, and "*S.*" *concinna*) and rarer angiosperms (*Arundo groenlandica*, *Myrica vernassiensis*, *Phyllites proteaceus*, *P. platanooides*, and *Rhus antiqua*) (BOZZI, 1891). Plants are associated with bivalves, gastropods and rare ammonites. The entire assemblage was ascribed to the "lower Senonian" (Tommasi, 1891), and more recently to the Coniacian-Santonian based on calcareous nannofossil analyses (GOMEZ ET AL., 2002). The plant-bearing limestones probably deposited in a lagoonal environment, which was sporadically influenced by open sea and was partly surrounded by emerged parts of the platform (MUSCIO & VENTURINI, 1990). Plant megafossils usually look like impressions covered by orange to brown, limonite powder. Less frequently, compressions with brown to black carbonized matter occur on the unweathered rock surfaces, but cuticles are not preserved. The plant assemblage of Vernasso has been of a renewed interest in the recent years because it consists of the first record of Cretaceous amber in Italy. Thus ROGHI et al. (2004) have reported that two conifer specimens were associated with amber. Since, we undertook a survey of known plant fossil collections from Vernasso with over 400 hand specimens, including the type material described by BOZZI (1891). This survey also led to further observations of amber in several conifer types. These include Araucariaceae, Cupressaceae and, possibly, Cheirolepidiaceae. A set of the new amber samples has been characterized by μ -Raman and infrared spectroscopy. We suggest that almost all Cretaceous conifers exuded resin, and that this defense behavior might be related to particular greenhouse conditions developed during the Coniacian-Santonian.

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