

Guadalupian microflora from the Rio Marina Formation (Elba Island): through a stratigraphic correlation of the Upper Paleozoic successions in Southern Tuscany (Italy)

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Recent stratigraphic studies on the Palaeozoic successions from Monticiano-Roccastrada Ridge (Southern Tuscany) provide the basis for original hypotheses on the significance of Tuscan Palaeozoic formations within the palaeogeographical framework of the western Mediterranean domain during post-Hercynian times. The present study is mainly focused on the first evidence of Permian sporomorphs in the metamorphic Rio Marina Formation exposed in the eastern sector of the Elba Island and their implications on the tectono-sedimentary history of the Tuscan basement, to which this unit pertains. The Rio Marina Formation mainly consists of alternations of graphitic dark-grey phyllites, metasiltstones and metasandstones with a maximum thickness of 250m. Due to the scarce biomineralized content, the age of this formation was strongly debated in the geological literature, and alternately attributed to Carboniferous (Mississippian and/or Pennsylvanian), early Permian (Cisuralian) or middle Permian (Guadalupian) based on different correlations. Progress towards this goal has been achieved in this study with the finding of a quite well preserved and diversified microflora of Guadalupian age. Palynological assemblage shows analogous morphological characteristics with those documented in the metasiltites of Farma Formation, cropping out in the area of Monticiano-Roccastrada Ridge (Southern Tuscany). These close similarities allow to refer both formations as deposited in the same time interval and paleogeographic setting. Accordingly, these two formations could be considered a post-collisional deposit following the final consolidation of the Variscan orogen with associated deformation of related foredeep basins possibly in a relatively shallow-water marine setting.