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Palynostratigraphy and correlation of Carboniferous microflora from some subsurface sections in Eastern Europe (Romania and southern Ukraine)

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This research outlines the palynological content and correlation of some Carboniferous assemblages that were recovered from rocks hosted on two platform units located in Eastern Europe, namely the Moesian Platform (Romania) and the Scythian Platform (southern Ukraine and Republic of Moldova).

Palynological data were obtained from four boreholes for hydrocarbon exploration, and core samples analyzed come from depths ranging from 1561 to 3500 m. Microfloristic assemblages are well-preserved, show a moderate diversity, and include mainly terrestrial elements (miospores of lycopsids, sphenopsids, ferns, pollen of gymnosperms) and very rare marine palynomorphs. Some biostratigraphic marker taxa identified in the studied samples have allowed us to outline the following Carboniferous miospore biozones proposed by Clayton et al. (1977) for the Western Europe:

- The *pusilla* up to *triradiatus*–*stephanephorus* Zones interval (early Visean) is outlined by the first occurrences (FO) of the *Knoxisporites stephanephorus* (Fig. 1A) and the last occurrences of the *Verrucosisporites nitidus* (Fig. 1B) and *Schopfites claviger*. This biostratigraphic interval was identified in both studied areas.

- The *vetustus*–*fracta* up to *carnosus*–*nitidus* Zones (late Visean–early Serpukhovian) can be established based on the FO of the *Tripartites vetustus* (Fig. 1C) and LO of the *Raistrickia nigra*. This zone interval was identified only in the Moesian Platform.

- The *kosankei*–*varioreticulatus* up to *aligerens* Zones interval (Bashkirian) is suggested by a few bioevents such as the FO of the *Grumosporites varioreticulatus*, *Leiotriletes sphaerotriangulus* and LO of the *Triquitrites tripartitus* (Fig. 1D) and *Densosporites spinifer*. The Bashkirian palynological assemblages identified both in the Moesian and Scythian platforms show a high correlation in terms of taxa and their frequency.

- The *nobilis*–*junior* up to *securis*–*laevigata* Zones (early Moscovian) represent the youngest biostratigraphic interval in the studied boreholes. The FO of the *Microreticulatisporites nobilis* (Fig. 1E) and LO of the *Savitrissporites nux* are bioevents



that define the early Moscovian age. This biostratigraphic interval is outlined only in southern Ukraine.

Our study also presents paleoenvironmental reconstruction and paleoclimatic implications of the northern Gondwanan Realm.

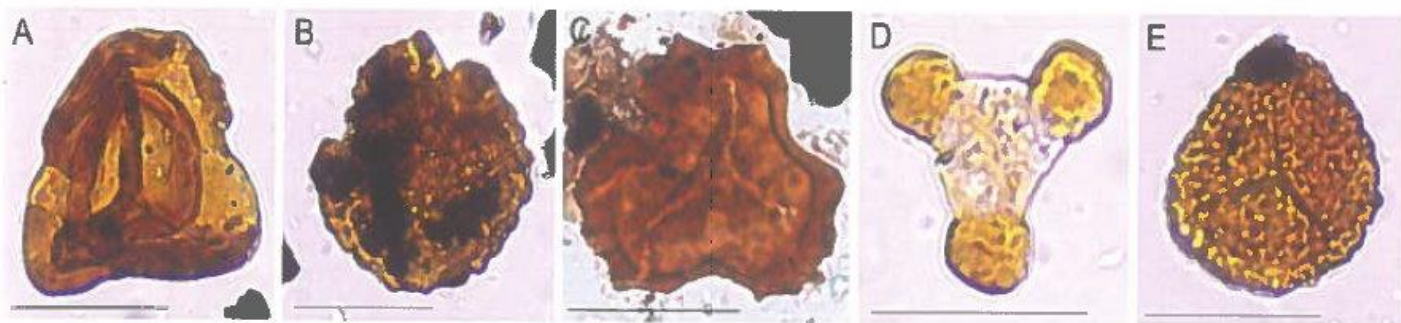


Figure 1. Significant biostratigraphic marker taxa from the Carboniferous deposits of the Moesian and Scythian platforms (scale bar - 30 μ m). A. *Knoxisporites stephanephorus*; B. *Verrucosisporites nitidus*; C. *Tripartites vetustus*; D. *Triquitrites triperititus*; E. *Microreticulatisporites nobilis*.

Reference

Clayton, G., Coquel, R., Doubinger, J., Gueinn, K.J., Loboziak, S., Owens, B., Streel, M. 1977. Carboniferous miospores of Western Europe: illustration and zonation. *Mededelingen - Rijks Geologische Dienst* 29, 1–71.