Ostracods (Crustacea) as indicators of the middle Miocene Badenian marine transgression (Central Paratethys, Bosnia and Serbia)

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Middle Miocene Badenian (=Langhian) marine transgression was a significant regional event that affected the Central Paratethys (herein, Bosnia and Serbia represent its marginal part). The flood waters covered various rock units, both older, mostly Mesozoic formations, and the early Miocene continental-lacustrine deposits. Therefore, there is a transgressive and unconformable relationship between older rocks and the Badenian sediments that cover them (*e.g*., Ugljevik, Jadar Basin, Kolubara Basin, Belgrade area, central Serbia). The major indicators of such event are molluscs, foraminifers, calcareous nannoplankton, ostracods, algae, etc. Based on them, the timing of seawater movement was determined (*e.g*., Pezelj *et al*., 2013; Mandic *et al*., 2019; Jovanović *et al*., 2019). Ostracods are not key microfauna for the dating of that event, but they give important response regarding the water quality, temperature, salinity, aeration, depth of water column, and other paleoecological features (*e.g*., Mandic *et al*., 2019). In general, the following species dominate: *Acanthocythereis hystrix* (Reuss), *Aurila haueri* (Reuss), *Callistocythere canaliculata* (Reuss), *Cletocythereis haidingeri* (Reuss), *Cnestocythere truncata* (Reuss), *Costa edwardsii* (Roemer), *Heliocythere vejhonensis* (Procházka), *Henryhowella asperrima* (Reuss), *Krithe* sp., *Loxoconcha hastata* (Reuss), *Paracypris polita* Sars, *Parakrithe dactilomorpha* Ruggieri, *Pokornyiella deformis* (Reuss), *Pterygocythereis calcarata* (Bosquet), *Tenedocythere sulcatopunctata* (Reuss). Taxa such as *Krithe* and *Parakrithe* live in the infraneritic (circalittoral) to bathyal zone (Ayress *et al*., 1999). These genera and other deeper water ostracods (*e.g*., *Paracypris*) support an open sea influence. *Callistocythere*, *Henryhowella*, *Xestoleberis*, *Costa*, *Acantocythereis* and *Pterygocythereis* occupy the infraneritic zone. Some genera are truly cosmopolitan (*e.g*., *Aurila*, *Costa*, *Loxoconcha*, *Cnestocythere*) and inhabit other provinces of that time (Mediterranean, Indo-Pacific). The shell size, its ornamentation and pronounced ultrastructure (*e.g*., *Pokornyiella*, *Cletocythereis*, *Semicytherura*, *Tenedocythere*) indicate conditions of a warm, shallow subtropical sea (Mandic *et al*. 2019).

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REFERENCES

Ayress, M., Barrows, T., Passlow, V., Whatley, R. 1999. Neogene to recent species of *Krithe* (Crustacea: Ostracoda) from the Tasman Sea and off Southern Australia with description of five new species: *Records of the Australian Museum* 51, 1–22.

Jovanović, G., Ćorić, S., Vrabac, S. 2019. The First evidence of marine Badenian transgression near Koceljeva (Central Paratethys, western Serbia). *Geološki Anali Balkanskoga Poluostrva* 80 (1), 1–15.

Mandic, O., Rundić, L., Ćorić, S., Pezelj, D., Theobalt, D., Sant, K., Krijgsman, W. 2019. Age and mode of the Middle Miocene marine flooding of the Pannonian Basin - constraints from Central Serbia. *Palaios* 34 (2), 71–95.

Pezelj, Đ., Mandic, O., Ćorić, S. 2013. Paleoenvironmental dynamics in the southern Pannonian basin during initial middle Miocene marine flooding. *Geologica Carpathica* 64, 81–100.