QUATERNARY OSTRACODS OF THE MARE VALLEY AT TURBUȚA

(County of Sălaj, Romania)

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Abstract: The paper presents the Pleistocene Ostracoda associations of the Mare Valley at the village of Turbuța (county of Sălaj), and analyses their paleoecological value. On the basis of this study several paleoenvironmental characteristics were estimated: a lacustrine, shallow-water and reduced, seasonally varying, slightly alkaline area, which was invaded by a rich aquatic vegetation but locally preserved a free water table. This lake existed during an interglacial period, which, according to palynological data, corresponds to the Eemian.

Key words: Pleistocene, Ostracoda, Paleoecology, Transylvania

The studied fossil site is situated in the Mare Valley - on the right branch of the Someșul Mare river, close to its sharp turn in the right side of Jibou. The Mare Valley flows from north to south in the area of the village of Turbuța, county of Sălaj.

The region is hilly, with heights between 200 and 400 m, and has an erosional-structural relief of cuesta, engraved in a slightly plicated, monoclinical structure, faulted in some places.

This monoclinical succession, of a SE dip, consists of Eocene deposits: the Jibou Beds in its basal part, followed by the Foișoara Gypsum, Câmpuri Beds, Morțanița Marl, and the Râkóczi Sandstone (Lower Marine Series), then the Turbuța Beds, followed by the Jebiște gypsum, the Cluj Limestone, and at the upper part, the Brebi Marl (Upper Marine Series).

The Quaternary deposits - the issue of our studies - develop locally on the Lower Marine Series, as the filling of a previous lake. This lake formed on the paleohydrographic network, behind a natural dam represented by the Râkóczi Sandstone. The disappearance of the lake was caused by the erosional cut of the above mentioned natural dam.

These lacustrine Quaternary sediments outcropped after the 1970 floods, on the right slope of the stream, at about 200 m from the northern entrance to the village. The outcrop consists of blue-blackish solidified muds, mixed with dense twisted vegetal (pond plants) remains, which give a turbid aspect to the sediment. This sediment is impressively rich in Bivalvia and especially Gastropoda shells, indeterminable bone fragments, plant seeds, Ostracoda and Insecta remains.

Since the mollusc association, which dominates the paleoenosis, is characterised by a large number of genera (28), species (29) and individuals, the blue-blackish sediment is of a white colour here and there, a consequence of the abundance of the shells. This exuberant richness of mollusc remains is dominated by the Planorbidae and Limidae (Clichici et al., 1979).

Here were also identified 26 genera with 28 species of plants, on the basis of their seeds, of which 40% are lacustrine, or slightly rheotolerant, 9% lakeshore, 18% humid edafon forest, 28% xylotopepe and 8% ubiquitous weed elements (Clichici, Dragos, 1976).

Based on the palynological analysis, 2 vegetation development phases were identified: I. the Pinus stage, subdivided into 9 episodes, and II. the Quercus stage, with 3 episodes (Diaconeasa et al., 1975). The first stage is characterised by a cold climate, the second by a warm one. On the basis of these analyses, the Quaternary deposits of the Mare Valley at Turbuța were attributed to the Riss/Würm interglacial (Eemian) stage.

For the study of the ostracods, 3 samples were analysed, but their relation of superposition could not be clarified (one of authors, O. C., who collected the samples considers, that these originate in approximately the same level). They present associations with an almost similar paleoecological significance, although their composition is different.

Sample A contains 3 determinable species and a small number of indeterminable fragments which represented about 75% of the material. The sample is dominated by the Candona (Neglecandona) cf. dedelica PETKOVSKI, 1969 (ex gr. neglecta SARS, 1887)(66%); besides, the species of Candona (Fabaeformiscandona) holzkampf HARTHIG, 1900 are quite well (19%) and subordinately one of Cypris pubera O.F. MÜLLER, 1776 (8%) is also present.

Sample B contains a very similar fauna, also dominated by Candona (Neglecandona) cf. dedelica PETKOVSKI, 1969 (91%), followed in significant subordinated amounts by Cypris pubera O.F. MÜLLER, 1776 (4,9%) and Stenocypris fischeri (LILLJEBOG, 1883) (2%) as well as by indeterminable detritus (3%).

Sample C is the richest one in species and individuals. While the first two samples were dominated (85-91%) by the genus Candona, in this sample its participation does not reach 35%, as follows: Candona (Neglecandona) ex gr. neglecta SARS, 1887 - only juvenile specimens (28,7%), Candona (Fabaeformiscandona) holzkampf HARTHIG, 1900 (4,5%) and Candonoepsis kingslei (BRADY & ROBERTSON, 1870)(0,4%), on the contrary, this sample is dominated by Cypridopsisae (completely absent in samples A and B) with more than 50%: Cypridopsis obesa BRADY & NORMAN, 1864 (48,4%) and Cypridopsis vidua (O.F. MÜLLER, 1776 (4,9%). Moreover, also participates in the association with a relatively high percentage, Cypris pubera O.F. MÜLLER, 1776 (4,9%), the remainder of the species showing insignificant proportions: Stenocypris fischeri (LILLJEBOG, 1883) (0,8%), Ilyocypris...
The chemical character of the water is difficult to be specified, due to the high euryplasticity of the species found. But the presence of the Stenocypris fischeri (LILJEBORG, 1883), Candoneopsis kingslei (BRADY & ROBERTSON, 1870) species, or even Cypridopsis vidua (O.F. MÜLLER, 1776) and Cyclocypris ovum (JURINE, 1820) indicate that we have to deal with a slightly alkaline aquatic environment, with a significant concentration of Ca.

The high eurythermoplacticity and the slight mesothermophilic character of Candona (Fabaeformiscandona) holzkampfi HARTWIG, 1900 and Cypridopsis vidua (O.F. MÜLLER, 1776) (Klie, 1938 and Pietrzynek, 1987) reflect temperate continental climatic conditions, corresponding to a Pleistocene interglacial period, probably that between Riss and Würm, thus to the Eemian.

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<tr>
<th>Temporary waters</th>
<th>Still water</th>
<th>Flowing waters</th>
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<tbody>
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<td>Candona holzkampfi</td>
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<td>Cypris pubera</td>
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<td>Cyclocypris ovum</td>
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<td>Cypridopsis obesa</td>
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<td>Candona dedelica</td>
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<td>Stenocypris fischeri</td>
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<td>Cypridopsis vidua</td>
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<td>Illyocypris sp.</td>
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<td>Candonopsis kingslei</td>
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Fig. 1. Environmental preferences of the Ostracoda species of the Quaternary deposits found in the fossil site from The Mare Valley at Turbuța

The Mare Valley at Turbuța

The Mare Valley at Turbuța on the basis of its environmental preferences

Fig. 2. Percent composition of the Quaternary Ostracoda fauna of the Mare Valley at Turbuța on the basis of its environmental preferences
References


