

NEW KNOWLEDGE ON CHITINOIDELLA GENUS RECORDED IN UPPER JURASSIC CARBONATE PELAGIC SEQUENCES OF THE WESTERN CARPATHIAN TETHYAN AREA

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Abstract: Detailed microfacial analysis of Tithonian pelagic carbonate sequences from Central Western Carpathian and Pieniny Klippen Belt areas allow us to recognize several differences in chitinoideid morphology on the base of which several chitinoideid genus and species: *Chitinoideid* Doben, 1963 – *Chitinoideid boneti* Doben, *Chitinoideid elongata* Pop; *Borziella* Pop, 1997 – *Borziella slovenica* (Borza); *Carpathella* Pop, 1998 a – *Carpathella rumanica* Pop; *Longicollaria* Pop, 1997 – *Longicollaria dobeni* (Borza), *Longicollaria insueta* (Řehánek); *Daciella* Pop, 1998 a – *Daciella danubica* Pop, *Daciella svinitsensis* Pop; and *Dobeniella* Pop, 1997 – *Dobeniella tithonica* (Borza), *Dobeniella cubensis* (Furrazola – Bermudez), *Dobeniella bermudezi* (Furrazola – Bermudez) could be recognized among the Middle Tithonian chitinoideids of the Dobeni and Boneti Subzones. Further new Genus *Popiella* n. gen. was introduced in the frame of which new species *Popiella oblongata* n.sp. was described.

Keywords: chitinoideids, Western Carpathians, Tethys, Late Jurassic, taxonomy, evolution, phylogeny, bioevents, biozonation

Introduction

Genus *Chitinoideid* was established by Doben (1962). Chitinoideids represent a very small group of ancient planktonic ciliates with microgranular, axially symmetrical lorica showing a dark wall in transmitted light.

Pop (1997, 1998 a) made taxonomic revision of chitinoideids, regrouped formerly single genus and he assigned all chitinoideid forms distinguished into several new genera. The author of this contribution tried to revise previous knowledge on this microplanktonic organisms from the Western Carpathian area and to correlate these results with those stated by Pop (1997, 1998 a). She tried to bring further lights to the taxonomy and the phylogeny of chitinoideids.

Stratigraphical distribution and biozonation of chitinoideids

Chitinoideids attained a dominant position in the plankton during the Middle Tithonian. *Chitinoidea* Zone was introduced by Enay and Geysant (1975) in Spanish Betic Cordillera and defined by Grandesso (1977) in the Venetian Alps. The Dobeni and Boneti Subzones (Borza, 1984) were characterized by the total range of the index species. However, Reháková (1995 b) pointed that the *Chitinoidea* Zone and both its subzones are close to interval zones, their upper boundaries being defined by the first index occurrences of the overlying younger biostratigraphic unit. The *Chitinoidea* Zone was distinguished in the Eastern Alps (Reháková et al., 1996), in Western Carpathians (Borza, 1984; Reháková, 1995 b), South Carpathians (Pop, 1986, 1989, 1997, 1998 a, b), Western Balcanides (Bakalova, 1977; Lakova, 1993) and in NW Anatolia (Altiner and Özkan, 1991). This zone has not been recognized neither in the Hellenides (Skourtsis – Coroneou and Solakius, 1999), nor in the Western Mediterranean and westernmost parts of the Tethyan region (Adatte et al., 1992; Remane et al., 1986). Another subdivision of this zone was given by Řehánek (1990).

Consequently, *Chitinoidea* Zone is defined by the first occurrence (FO) of microgranular chitinoideids. FO of *Longicollaria dobeni* (Borza) represents beginning of the Dobeni Subzone; the zonal species is accompanied by *Longicollaria insueta* (Řehánek), *Borziella slovenica* (Borza), *Carpathella rumanica* Pop, *Daciella danubica* Pop, *Daciella svinicensis* Pop higher also *Dobeniella bermudezi* (Furrazola–Bermudez), *Dobeniella tithonica* (Borza) *Dobeniella cubensis* (Furrazola–Bermudez) and *Popiella oblongata* n.sp. *Daciella banatica* Pop, *Daciella almajica* Pop and *Almajella cristobalensis* (Furrazola – Bermudez) were not recognized in the Western Carpathians section studied.

The FO of *Chitinoidea boneti* Doben is typical for the Boneti Subzone. Besides the zonal species, chitinoideid association consists of *Chitinoidea elongata* Pop as well as some forms persisting from the preceding Dobeni Subzone.

Chitinoideid phylogeny

Pop (1998 a) discussed in detail the phylogeny of chitinoideids. He found out, that practically all newly defined species (Pop 1997) are morphologically very comparable with some calpionellids of the Crassicollaria and Calpionella Zones. Among the chitinoideid associations Pop (1998 b) stated several logical parallel phylogenetic lineages proving the phylogenetic relationship between chitinoideids and calpionellids. All these stocks confirm the phylogenetic concept introduced by Reháková and Michalík (1997).

Differently to Pop results, this paper considers that *Longicollaria dobeni* gave rise to stock represented by two lineages passing through larger *Dobeniella* species and terminated by *Crassicollaria* loricas with more-or-less pronounced swellings below the base of their collars: *Dobeniella colomi* → *Crassicollaria intermedia*.

Species *Dobeniella tithonica* could have been the ancestor of calpionellids having a composed collars of one or several plicae: *Dobeniella tithonica* → *Remaniella ferasini*. The newly described *Popiella oblongata* could have been the ancestor of *Calpionellopsis* type forms: *Popiella oblongata* → *Calpionellopsis simplex* → *Calpionellopsis oblonga*.

Conclusions

Detailed investigations of chitinoideid morphological features (lorica and collar construction) allowed us to distinguish several chitinoideid genera and species among the Middle Tithonian chitinoideids of the Chitinoideidella Zone (the Dobeni and the Boneti Subzones) in pelagic „Ammonitico Rosso“ type facies. Further, three phylogenetic stocks were recognized in the frame of vertical chitinoideid distribution:

- 1) The first one is derived from *Longicollaria dobeni* which could have been the ancestor of larger crassicollarian loricas.
- 2) Lineage represented by *Dobeniella tithonica* gave rise to forms having a composed collar
- 3) Newly described *Popiella oblongata* could have been the ancestor of *Calpionellopsis* and later *Calpionellopsella* type forms.

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