

Early Darriwilian conodonts from the Sobova Formation in the Eastern and western Taurides, Southern Turkey

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Early and Middle Ordovician successions in the Tauride Belt are mainly represented by the Seydisehir Formation, which comprises the Tremadoc and Arenig Series. The Seydisehir Formation is generally made up of dark green to grey anchimetamorphic slates and siltstones (siliciclastic tempestites) with a few conodont-bearing nodular limestone bands at its lowermost part (Babadere Member). The main body of the formation includes a large number of coarsening-upwards sequences, displaying well-developed flute casts, parallel lamination, cone-in-cone textures and includes Tremadoc trilobites and graptolites (Dean and Monod, 1970, 1990; Özgül *et al.*, 1973) in its lower part, and Arenig trace fossils (*Phycodes circinatum* (Richter) in its upper part (Özgül and Kozlu, 2002).

The Seydisehir Formation is overlain by a carbonate-rich sequence with lenses and discontinuous bands of sandy limestones known as the Sobova Limestone Formation (Monod, 1977). The thickness of this formation is about 40 m. The dark grey bioclastic limestone lenses within gray siltstones/shales in the lower part of the formation are very rich in brachiopods, trilobite fragments and corals. In the middle part a grey, *ca.* 4 m thick, medium to thick-bedded, sandy limestone band with abundant *Cystoide* sp. occurs. The bedding-planes of the limestones are characterized by hardgrounds. The upper part of the formation includes thin bands and lenses of dark grey sandy limestones interlayered with siltstones and terminates with grey silty shales.

Two sections of the Sobova Limestone Formation were sampled for conodont studies: the type-locality in Sobova Village, Beyschir, Western Taurides and the Kozan Dam in the Eastern Taurides, with a distance of almost 400 kms from each other. In both localities the stratigraphy and the lithofacies of the formation are almost the same.

This preliminary report provides a detailed identification of Early Darriwilian conodonts from the Sobova Limestone Formation. Arenigian conodont faunas from Turkey were first mentioned by Barnes (in Dean, 1973) and latter described and illustrated by Gedik (1977).

Seven calcareous samples between 2 and 4 kg in weight provided up to 400 well preserved conodont elements. Specimens are medium to dark brown with a CAI of 3–4 indicating they have been subjected to temperatures of 110–300°C (Epstein *et al.*, 1977).

Conodont faunas recovered from the uppermost carbonate bands of the Sobova Limestone Formation in its type-locality include the following taxa: *Baltoniodus norrlandicus* (Löfgren), *Drepanodus arcuatus* Pander, *Drepanodus cf. arcuatus*, *Drepanodus cf. planus* (Pander), *Drepanodus* sp.,

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Drepanoistodus forceps (Lindström), *Drepanoistodus* sp., *Cornuodus* cf. *longibasis* (Lindström), *Lenodus*? sp., *Microzarkodina* sp., *Protopanderodus calceatus* Bagnoli and Stouge, *Protopanderodus* sp., *Scolopodus rex* Lindström and *Triangulodus*? sp.

Conodont samples from the Kozan–Sobova and Kozan Dam sections were recovered from the limestone bands within the upper part of the Sobova Limestone Formation in Eastern Taurides. These samples provided a diverse conodont fauna that includes: *Acodus*? sp., *Ansellia jemtlandica* (Löfgren), *Baltoniodus navis* (Lindström), *Baltoniodus* cf. *navis*, *Baltoniodus norrlandicus* (Löfgren), *Baltoniodus*? sp., *Cornuodus longibasis*, *Drepanodus arcuatus*, *Drepanodus* cf. *Planus*, *Drepanodus* sp., *Drepanoistodus basiovalis* (Sergeeva), *Drepanoistodus* cf. *basiovalis*, *Drepanoistodus bellburnensis*? Stouge, *Drepanoistodus forceps*, *Lenodus* sp., *Microzarkodina* sp., *Protopanderodus rectus* (Lindström), *Protopanderodus* sp., *Scolopodus rex*, *Trapezognathus* sp., *Triangulodus brevibasis* (Sergeeva) and *Tropodus*? sp.

Due to the strong affinities between early Darriwilian conodont taxa of Turkey and Baltoscandia, the conodont biozonal scheme proposed by Löfgren (2000) for Sweden is applied in this study. Conodont faunas from the Sobova Limestone Formation are attributed to the *Baltoniodus norrlandicus* Biozone (Volkhov – Kunda stage boundary) based on the occurrence of the index species in the investigated levels from Western and Eastern Taurides. The *Trapezognathus quadrangulum* and *Lenodus antiuariabilis* subzones distinguished by Löfgren (2000) within the *B. norrlandicus* Zone are not recognizable in the Turkish collection.

Member of the *Baltoniodus norrlandicus* Zone were also identified in reworked conodont faunas from the Moroccan Meseta by Bultynck and Sarmiento (in press).

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