Abstract

The presented work consists of three separate papers that have been published in peer-reviewed journals. The published studies summarize and refine the existing knowledge about some conodont faunas of the Devonian with a primary focus on P1 elements and their potential in biostratigraphy. The dissertation thesis consists of three main parts. The first part is designed as an introduction, a summary of the objectives of the presented work, and methodologies used during the conodont sampling and sample processing and samples for thin sections. The second part of the work presents a general overview of the problems of conodont elements in biostratigraphy of the Devonian, characterizes the geological conditions and paleogeographic development of the areas from which the studied elements come from. The third part summarizes the results, brings a discussion on the herein presented data published in articles and contains the final word on the researched issues. The published studies on which this work is based are focused on platform elements of ozarkodinids and icriodontids, whose global distribution in time and space enables their study in different environments and stratigraphic levels. The microfacial characteristics of the studied sections and the issue of conodont biostratigraphy in the Devonian are discussed as well. A total of 38 conodont samples and 39 samples for microfacial analysis were collected and processed from sections Na Požárech, Praha-Radotín (Prague Synform, Czech Republic) and Hushoot Shiveetiin gol section (Baruunhuurai Terrane, Mongolia). Part of the work was also study of conodont material from the museum collections of prof. O. Walliser at the University of Göttingen with the main focus on samples from Cellon section (Carnic Alps, Austrian-Italian border) and Atrous 3 section (Anti Atlas, Morocco). A total of 13 conodont taxa were reported from samples from the Na Požárech section and 18 from samples taken from the Praha-Radotín section. Also, a new species *Zieglerodina petrea* was described from the base of the Devonian in both Bohemian sections. This taxon was found also in samples from the Cellon section, which confirms its occurrence within the peri-Gondwana. The newly described taxon has a great potential for biostratigraphic correlation of the basal Devonian boundary, especially in sections where the conodont species *Icriodus hesperius* or graptolite species *Uncinatograptus uniformis uniformis* are missing. The morphology of the newly described species *Zieglerodina petrea* and its phylogenetic relationship to the taxon *Zieglerodina paucidentata*, which also occurs at the base of Devonian and is widespread worldwide, were studied. Based on similar trend of denticulation in both taxa

and the presence of a gap between the denticles in the posterior part of the platform element, a subdivision into several morphological subgroups was proposed. This proposal would be a basis for follow-up studies on the systematics of these taxa in order to refine their potential in biostratigraphy. Microfacies analysis confirmed diverse sedimentary environments at the Silurian/Devonian boundary in the Na Požárech section and Praha-Radotín section. Despite the presence of the *Syphocrinites* Horizon, the Na Požárech section represents an area with relatively shallow water sedimentation close to the Silurian/Devonian boundary, while in the Paha-Radotín section represents slightly deeper water environment. All together, 30 conodont taxa were described in the samples from the Hushoot Shiveetiin gol section. Also, a new species *Ancyrognathus minjini* was described. The study of Mongolian conodont samples also included a description of conodont biofacies, in which several cosmopolitan species and two endemic species (including the newly described taxon) were found. Microfacial analysis indicated a predominance of siliciclastic sediments. The sedimentary environment of the Hushoot Shiveetiin gol section was apparently affected by volcanic activity in Famennian. The results of the presented research and publications are important not only for the conodont biostratigraphy on a global scale but can also be used in the reconstruction of paleoecological conditions and paleoenvironment, especially in combination with sedimentary and microfacial analysis.