

Abstract

This thesis deals with the belemnite fauna from the Outer Western Carpathians Klippen, its systematic classification, stratigraphical and palaeogeographical evaluation. The palaeontological/palaeobiological approach, together with isotope analyses, including of carbon and oxygen stable isotopes and of strontium isotopes, enabled an integrated investigation of the palaeoecological conditions during the Jurassic/Cretaceous (J/K) boundary interval and the Early Cretaceous age. The Tethyan belemnites are not intensively studied in detail in the J/K interval, as they occur rather rarely in the sections, and/or sedimentary conditions were not suitable for their preservation. Therefore, belemnites are described only from a few sites in the Mediterranean Province. On the basis of recent research, the stratigraphic range of several species previously considered to be from the Tithonian age was extended to the earliest Cretaceous. By contrast, the Lower Cretaceous belemnites (since the late Berriasian) are more abundant. In the classical areas of the Tethyan Realm, it is possible to study the Lower Cretaceous belemnites in great detail and, according to their higher abundance, to determine an individual assemblage corresponding to stratigraphical intervals. Their occurrence is also an important basement for palaeobiogeography and for recognition of migration patterns. Belemnite original habitats offer further evaluation of ecological preferences. Additionally, the study of isotope ratios from calcitic (Mg-low) rostra significantly helps with interpretation of the palaeoenvironment. The studied assemblages show a relatively high belemnite diversity of the NW edge of the Tethys Ocean. For taxonomic evaluation, more than 10,000 belemnite rostra were systematically studied: two families, six genera and 28 species with 12 taxa in open nomenclature were identified. Stratigraphic range of the studied rostra ranges from the Lower Tithonian to the late early/early late Barremian. The majority of material represents allochthonous accumulations of belemnites originating at different stratigraphical levels and palaeoenvironmental habitats. According to determined belemnites at species levels, individual stratigraphic intervals were confirmed. Individual taxa are more or less bathymetrically dependent, therefore they have been used for reconstruction of the geological/environmental history of a Klippen part of the Outer Western Carpathians. After a relatively shallow water period in the Tithonian to Berriasian interval, deeper water conditions were established during the Valanginian and probably the ?Hauterivian. After the Barremian, the area turned to shallow-water conditions again. Palaeobiogeographically determined belemnite rostra correspond to the Mediterranean Province and to the French-Bulgarian Subprovince established since the

Hauterivian. Belemnites from the Outer Western Carpathians show the closest similarity to Spanish, French, Moroccan, Hungarian and Italian belemnite faunas. The strontium isotope values obtained from belemnite rostra at Štramberk clearly proved the early Berriasian age and refute the presumption of the Tithonian strata in the studied sections. Carbon and oxygen stable isotopes follow a comparable negative trend without significant deviations, typical for the northern Tethyan Realm.