ACTA PALAEONTOLOGICA POLONICA

Early Frasnian acanthodians from central Iran

Vachik Hairapetian, Juozas Valiukevičius, and Carole J. Burrow
Acta Palaeontologica Polonica 51 (3), 2006: 499-520

Two vertebrate-bearing horizons in the basal Frasnian carbonate of the Chahriseh section, northeast of Esfahan, yielded microremains of thelodonts, placoderms, acanthodians, actinopterygians, chondrichthyans, and sarcopterygians, considerably expanding the vertebrate faunal list for the strata. Acanthodians comprise a diverse association of climatiids, diplacanthids, and ischnacanthiforms, including the previously recorded climatiid *Nostolepis* sp. cf. *N. gaujensis*, as well as one new climatiid genus and several taxa left in open nomenclature. Climatiid *Iranolepis ginteri* gen. et sp. nov. is diagnosed by having scales with a highly raised medial crown area separated by steep slopes from lateral crown areas; an odontocytic mesodentine of maximum extent in the crown, distinguished by extensive network of fine canaliculi with abundant tiny osteocytes; and a poorly developed stranggewebe system. Other scales with fan-like symmetrically grooved crowns conform to the *Diplacanthus*-type histologically, and have many characters in common with *Milesacanthus antarctica* from the Aztec Siltstone of Antarctica. Osseous gnathal elements include mesodentinous tooth whorls from an ischnacanthiform or climatiid, and ischnacanthiform jaw bones with large chambers for vascular canals, distinctly separated cylindrical tooth cusps along the lingual ridge, and wide-based, triangular, weakly striated cusps on the main lateral ridge. The acanthodian association, accompanied by the Frasnian conodonts of the middle *Mesotaxis falsiovalis* to *Palmatolepis hassi* zones and zonal thelodonts *Turinia hutkensis* and *Australolepis seddoni*, is proving useful for biostratigraphy, showing similarities with assemblages from both Gondwana and the Old Red Sandstone Continent.

Key words: Acanthodii, Ischnacanthiformes, Climatiidae, Diplacanthidae, scales, dental elements, histology, Devonian, Frasnian, Iran.

Vachik Hairapetian vachik@khuisf.ac.ir, Department of Geology, Faculty of Sciences, Esfahan University, 81746, Esfahan, Iran; Juozas Valiukevičius valiukevicius@geo.lt , Institute of Geology and Geography, T. Ševčenkos 13, 03223 Vilnius, Lithuania;
Carole J. Burrow C.Burrow@uq.edu.au, Department of Zoology and Entomology, School of Integrative Biology, University of Queensland, Queensland 4072, Australia


Full text (2,110.3 kB)