Abstract

The freshwater fish species *Schistura robertsi* and *Paracanthocobitis zonalternans* belong to the family Nemacheilidae, which is distributed across whole Eurasia and with one species in northeast Africa.

P. zonalternans occurs in lowland habitats through western Southeast Asia from Central Myanmar until northern Malaysia. The distribution area is of biogeographic interest, because it crosses several known biogeographic barriers, namely the border between Indian and Indochinese freshwater fauna along the Salween River, the Isthmus of Kra, the Krabi – Surat Thani line and the Kangar - Pattani line. In the present study, around 250 specimens of *P. zonalternans* from 62 localities across the whole distribution area were investigated using genetic (nuclear and mitochondrial sequences), morphologic and geologic data.

The genetic data reveal the existence of seven major clades within the analysed material, each of them with a distinct geographic distribution area and only few cases of overlap, but with occurrence of some cases of secondary contact. Divergence time estimations suggested that *P. zonalternans* is about 18 my old, and a biogeographic analysis located the region of origin in the Tenasserim region (nowadays southern Myanmar). The global sea level fluctuations seem to have had a strong impact on the formation of the observed genetic lineages. Morphologic analyses supported the status of undescribed species for one of the lineages, which was also in phylogenetic analyses very distinct to all the others. The other clades showed only very little morphologic differentiation and are considered as conspecific. The results also show that some characters formerly used for species descriptions have no diagnostic value.

S. robertsi group includes five described species *S. robertsi, S. aurantiaca, S. balteata, S. crocotula, S. cincticauda* and also an undescribed species, *S.* sp „Sumo“. In the present study, around 200 specimens from 47 localities were used. Phylogenetic results show ten major lineages, seven of them are corresponding to known described or undescribed species. However, basing on the present analyses the *S. robertsi* is polyphyletic. Most of the lineages are genetically deeply isolated and part of them is fitting to biogeographical pattern, but with frequent co-occurrence in secondary contact areas.

Key words: *Paracanthocobitis*, *Schistura*, Nemacheilidae, Biogeography, Southeast Asia, Geology, Global sea water fluctuation, Morphometry, Colonisation, Bariers