

## Abstract

Master thesis presents cytogenetics analysis of 13 species of suborder Cyphophthalmi belonging to the genus *Cyphophthalmus* originating at the Balkan Peninsula. Cytogenetics analysis discovered variability in diploid numbers 24–30. Thesis also presents first identification of sex chromosomes XY for suborder Cyphophthalmi. Morphological types of chromosomes, their variability in size and decreasing diploid numbers indicate that the main chromosome rearrangements during karyotype evolution of the genus *Cyphophthalmus* are centric or tandem fusions. FISH method with probe for gene 18S rDNA was applied in 10 species. That discovered variability in number and distribution of NORs. Cytogenetic analysis was supplemented by molecular phylogenetics analysis with use of 3 genes (COI, 28S rRNA and histon H3). That confirmed distribution of species into four groups (Dinarian, Aegean, Gjorgjevici and Volos). There was discovered similar interspecies variability of karyotype within individual groups, which suggests that the differentiation of karyotypes of genus *Cyphophthalmus* happens independently by similar mechanisms.

**Keywords:** cytogenetics, molecular phylogenetics, harvestmen, *Cyphophthalmus*, FISH, Balkan Peninsula, karyotype evolution