

## **Abstract**

Gobies (Gobiidae, Actinopterygii) are small, predominantly cryptic, marine, brackish and freshwater fishes. They abundantly inhabit coastal waters, although their occurrence is far from being mapped due to their inconspicuity, often hidden lifestyle and a lack of commercial use. Information about distribution of many species is therefore still rather poor. Many species are known only from a few locations scattered throughout the Mediterranean Sea and the Atlantic. This suggests that most species could actually have a relatively continuous distribution area. Comparing the genetic variability of geographically distant populations of the same species can help to detect whether there is some population subdivision and whether populations are genetically isolated from each other. The aim of my thesis was to compare genetic variability of the populations of eight goby species: *Corcyrogobius liechtensteini*, *Gobius cruentatus*, *Gobius geniporus*, *Gobius incognitus*, *Chromogobius quadrivittatus*, *Chromogobius zebratus*, *Millerigobius macrocephalus* and *Zebrus zebrus* within Mediterranean Sea and north-eastern Atlantic Ocean. Samples used in this work were collected from two Atlantic (Spain and Portugal) and seven Mediterranean localities (France, Sicily, Croatia, Montenegro, Greece, and Cyprus - northern and southern part). This study was based on molecular-genetic methods. Around 350 specimens were analysed for both mitochondrial marker cytochrome b (cyt b) and nuclear marker ribosomal protein gene S7. The results show that there was a greater polymorphism in cyt b in almost all species, except of *C. liechtensteini* that was more polymorphic in S7. No particular population subdivision has been found in any of the species, there was rather certain gradient, i.e. a difference in genetic diversity between the (sub)populations from the localities on the easternmost and westernmost end of the distribution of most of the studied species. Certain degree of genetic partitioning and potential existence of geographic barriers was found for *G. cruentatus* and *G. geniporus*. It seems that Sicily Channel, which has been evidenced as an important breakpoint for gene flow in some representatives of marine fauna, could play a role in genetic structuring in some of the studied species. Due to the fact that adult gobies do not migrate, passive transport of planktonic larvae is probably very essential for the genetic structure of populations of studied species of gobies. Additionally, a cryptic hidden diversity was revealed in two lineages of cryptobenthic gobies where three unknown species have been detected.

## **Key words:**

Actinopterygii, fish, Gobiidae, Mediterranean Sea, population genetics, evolution