

ABSTRACT (in English)

Until relatively recently, the gecko genus *Hemidactylus* was considered to contain only several hard-to-distinguish species in the eastern Mediterranean and the Arabian Peninsula. This was mostly given by the apparent morphological uniformity of the geckos in combination with their often synanthropic lifestyle, which facilitated the dispersal of some of the species over large ranges. However, our understanding of the diversity of the genus was about to change with the onset of molecular phylogenetic methods that became extensively available and routinely applied to tackle the questions of systematics and phylogeny of all kinds of organisms. This thesis focuses on resolving the phylogeny, systematics, and biogeography of the Arabian *Hemidactylus*. Using an unprecedented sampling of over 500 samples of more than 40 *Hemidactylus* species from the eastern Mediterranean, Arabian Peninsula, Socotra, North and East Africa and Iran and sequencing up to six genes (two mitochondrial – 12S rRNA, *cyt b*; four nuclear – *cmos*, *mc1r*, *rag1*, *rag2*) I reconstructed the time-calibrated phylogeny of the arid clade of *Hemidactylus*, inferred its complex biogeographical history in the region, and detected seven potentially new species. The results of the biogeographic analyses indicate that the current distribution of the genus has been shaped by both vicariant and dispersal events in its history. The vicariant events were most probably caused by the geological processes in the area coincident with the separation and drifting of landmasses in the Early Miocene. Since its separation from Africa, southern Arabia has been an important centre of diversification for *Hemidactylus* from where it repeatedly dispersed to all the neighbouring areas. The discovery of the unexpectedly high genetic diversity of the Arabian *Hemidactylus* with several lineages potentially representing yet unknown species led to more detailed examination of the genetic data and also the morphological characters in order to resolve the taxonomy of these candidate species. As a result of that, one species was resurrected from the synonymy of *H. turcicus* and four new species were (are being) described. Most of the new species were found in the mountains of southwestern Arabia, stressing the importance of this poorly studied region as one of the richest parts of Arabia in terms of reptile diversity and endemism.