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High genetic differentiation within the *Hemidactylus turcicus* complex (Reptilia: Gekkonidae) in the Levant, with comments on the phylogeny and systematics of the genus

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Abstract

The molecular phylogeny of *Hemidactylus turcicus* (sensu lato) and related Levantine taxa of *Hemidactylus* geckos were studied using mitochondrial DNA sequence data. Five main phylogenetic lineages were detected within the distribution area of *H. turcicus*: (1) *H. turcicus* (sensu stricto) from the Mediterranean region comprising two widely distributed haplotype groups divergent by 2.1%; (2) *H.* cf. *turcicus* from north-eastern Israel forming a divergent (7.2%) sister lineage to *H. turcicus* s.s.; (3) *H. turcicus lavadeserticus* from the black Syrian basalt desert; (4) *H. mindiae* from southern Jordan; and (5) a highly supported lineage representing an unnamed species of *Hemidactylus* distributed in southern Syria and Jordan. On the basis of the obtained phylogenies, genetic divergences and morphological comparisons, the subspecies *H. turcicus lavadeserticus* is elevated to full species level and the unnamed *Hemidactylus* clade is described as a new species, *H. dawudazraqi* **sp. n.** In addition, an unnamed lineage of *Hemidactylus* from southern Sinai and exceptional genetic differentiation within "*H. turcicus*-like" forms from Yemen are reported, the type locality of *H. turcicus* is discussed and also comments are provided on the phylogeny and systematics of the genus *Hemidactylus*.

Key words: Reptilia, Gekkonidae, *Hemidactylus*, Molecular Phylogeny, Near East, Jordan, Syria, *Hemidactylus lavadeserticus*, *H. dawudazraqi* **sp. n.**, Endemism

Introduction

The wide range of the Mediterranean house gecko *Hemidactylus turcicus* (Linnaeus) extends from the Western Mediterranean, including Canary Islands, to the Near East (beside introductions to the New World). Whereas the circum-Mediterranean populations represent only two closely related evolutionary lineages (Rato *et al.* 2011), two samples from northern and western Jordan have been found to form a divergent clade considered a sister taxon to the Mediterranean form (Carranza and Arnold 2006). The morphologically well-differentiated subspecies *Hemidactylus turcicus lavadeserticus* Moravec & Böhme was described from the area of the black basalt desert in southern Syria (Moravec and Böhme 1997) and the presence of the recently described *Hemidactylus mindiae* Baha El Din has been proven in the Wadi Ramm sandstone massifs of southern Jordan (Amr *et al.* 2007). These facts suggest that proper taxonomic assignment of the Jordanian and other Levantine populations usually assigned to *Hemi-*

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