



Fayoum University  
Faculty of Science  
Zoology Department

**Phylogeographic assessment of *Acanthodactylus boskianus*  
(Reptilia: Lacertidae) based on phylogenetic analysis of  
mitochondrial DNA**

By  
**HAGAR IBRAHIM HOSNI BAYOUMI**

A thesis submitted in partial fulfillment  
Of  
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## ABSTRACT

The Nile River is the longest channel system in the world. It divides the Egyptian land into two halves with diverse fauna. The effect of the origin of the Nile on diversity of endemic fauna is still poorly understood. *Acanthodactylus* is a widespread lacertid genus distributed around the Nile River across Egypt. Besides, its distribution range extends from western India including the Middle East, Cyprus, and the Arabian Peninsula to the Iberian Peninsula and western North Africa, with problematic taxonomy and phylogenetics, particularly for *Acanthodactylus boskianus*. In this study we define the phylogeographic structure of *A. boskianus* across most of its distributional range across Egypt in both sides of the Nile River using partial mitochondrial DNA analyses. DNA sequences (12S rRNA and ND4) (408 and 846 base pairs, respectively) were analysed from 46 specimens of *A. boskianus* from different areas in Egypt. Also, 40 sequences of 12S were downloaded from Gene Bank and included to our sequences. The phylogenetic results indicate that the populations of *A. boskianus* in Egypt are grouped into four distinct clades: east and west of the Nile, Nile Delta and Mediterranean coastal populations, and Sinai. The messinian crisis and colonization of *A. boskianus* at the Mediterranean coast resulted in *A. boskianus boskianus* which differed from *A. boskianus asper* remained in zeric zones with dry habitats. Our results indicate that the Nile River might present physical barrier that potentially have led to the vicariance separation of *A. boskianus*. We think that *Acanthodactylus* is still with problematic taxonomy.