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Nuclear and mitochondrial markers result in controversial phylogenies in *Buthus occitanus* subspecies (Scorpiones: Buthidae)

B. Gantenbein,[1] C. R. Largiadèr,[1] V. Fet[2] & A. Scholl[1]

[1] *Institute of Zoology, Division of Population Biology, University of Berne, Baltzerstrasse 3, 3012 Berne, Switzerland*
[2] *Department of Biological Sciences, Marshall University, Huntington, West Virginia 25755-2510, USA*

Buthus occitanus (Amoreux, 1789) (Scorpiones: Buthidae) occurs in Europe (Southern France and Spain) and in North Africa where several subspecies were described. Populations from both sides of the Strait of Gibraltar were analysed using allozyme electrophoresis (15 loci scored) and DNA sequencing of a 460 bp fragment of the mitochondrial 16S rRNA gene. The samples were collected from three sites in Spain and France (ssp. *occitanus*), eleven sites in Morocco (ssp. *occitanus*, ssp. *mardochei* and ssp. *paris*) and one site in Tunisia (ssp. *tunetanus*). Also, *B. atlantis* from five sites along the Atlantic coast of Morocco were included. This taxon was previously considered to be a subspecies of *B. occitanus*. A sample of *Androctonus mauretanicus* (Pocock, 1902) from Morocco and a sample of *Androctonus crassicauda* (Olivier, 1807) from Turkey were included as outgroups in the allozyme analysis; and a sequence of *A. crassicauda* was used as the outgroup in DNA analysis.
Phylogenetic analysis based on allozyme allele frequency data results in tree topologies that divide the populations into two clades, i.e. an European population clade and a Moroccan population clade. Within these clades low levels of variability are observed for allozymes. Conversely, phylogenies constructed with mtDNA sequence data split the Moroccan populations into several distinct lineages that largely coincide with described subspecies. The divergence among these lineages is about the same as between populations separated by the Strait of Gibraltar (approximately 12% sequence divergence).