



Phylogenetic relationships within the *cahirinus-dimidiatus* group of the genus *Acomys* (Rodentia: Muridae): new mitochondrial lineages from Sahara, Iran and the Arabian Peninsula

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Abstract

Spiny mice belonging to the *cahirinus-dimidiatus* group of the genus *Acomys* have become a widely used model in physiology and behaviour. To improve current knowledge concerning the phylogeny of this taxon, we analysed 24 samples from Libya, Chad, Egypt, Jordan, Cyprus, Crete, Turkey, Yemen and Iran. We sequenced the whole mitochondrial control region and part of the flanking tRNA genes for a total length of 986 to 996 bp and described 22 haplotypes. Our results confirmed that the Afro-Mediterranean and Asian clades are clearly distinct (p-distance = 6–8.1%). The former clade corresponds to *A. cahirinus sensu lato* (i.e. including also the Cretan *A. minous*, Cypriot *A. nesiotis* and Turkish *A. cilicicus*). Haplotypes of *A. cahirinus* from the E Sahara (S Egypt, SW Libya, N Chad) grouped with those of *A. cilicicus* and *A. minous* (p-distance $\leq 2.2\%$), while haplotypes of *A. nesiotis* grouped with one haplotype representing the commensal *A. cahirinus* from Cairo (p-distance = 1.2%). Close similarity among haplotypes from mainland Africa and NE Mediterranean (clade *A. cahirinus sensu stricto*) support the hypothesis that ancestors of *A. nesiotis*, *A. cilicicus* and *A. minous* dispersed most probably as commensal populations, thus questioning their status of valid species. The most surprising finding was the considerable genetic variation in Asia. In addition to a haplogroup from Sinai and Jordan (corresponding to *A. dimidiatus sensu stricto*), we detected two previously unknown haplogroups, from Yemen and Iran + United Arab Emirates. These clades are fairly distinct and separate species/subspecies status of these animals might be further considered.

Key words: spiny mice, mitochondrial DNA, mitochondrial control region, D-loop, phylogeography, commensalism, Yemen, Libya, Cyprus, Persian Gulf

Relazioni filogenetiche all'interno del gruppo *cahirinus-dimidiatus* nel genere *Acomys* (Rodentia: Muridae): nuove linee mitocondriali identificate nella regione del Sahara, in Iran e nella penisola araba

Sommario

I topi spinosi appartenenti al gruppo *cahirinus-dimidiatus* nel genere *Acomys* sono diventati animali modello ampiamente usati in studi fisiologici e comportamentali. Per migliorare le conoscenze attuali riguardanti la filogenesi di questo taxon, abbiamo analizzato 24 esemplari di topo spinoso provenienti da Libia, Chad, Egitto, Giordania, Cipro,