

Mitochondrial divergence between three cytotypes of the Anatolian Mole Rat, *Nannospalax xanthodon* (Nordmann, 1840)

(Mammalia: Rodentia)

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Abstract. The Blind Mole Rats of Anatolia (*Nannospalax xanthodon* (Nordmann, 1840)) are characterised by prolific chromosomal diversification. While the geographic distribution of various cytotypes is well documented, opinions on their taxonomic ranking varies amongst authorities. A partial sequence (630 bp) of mitochondrial cytochrome *b* gene in 13 Blind Mole Rats from the Konya basin, central Anatolia, which represented three distinct cytotypes ($2n = 40, 58,$ and 60) yielded nine *cyt b* haplotypes. Phylogenetic reconstructions recognized three well supported lineages which matched diploid number counts. Genetic divergences between cytotypes were high (K2P between $8.16\% \pm 1.19$ and $11.33\% \pm 1.42$) and application of the 2% divergence rate to the net divergence estimates suggests their divergence about 3.84 and 5.43 Mya (95% confidence interval = 1.53-8.19 Mya). If one would rely on genetic operational criteria in species delimitation, there would be little doubt that the three *Nannospalax* cytotypes analysed in this study belong to distinct allopatric species. Before translating the results into formal taxonomy, more genetic information should be acquired on different *Nannospalax* cytotypes occupying the eastern Mediterranean.

Key words. cytochrome *b*, molecular phylogeny, chromosomal speciation, cryptic species.

Introduction

Blind Mole Rats (family Spalacidae) are a small group of subterranean rodents native to the eastern Mediterranean, eastern Europe, the adjacent westernmost Asia and northeastern Africa. While they are morphologically well delineated from all other rodent groups, evolutionary diversification and speciation within the family has been the cause of a long-lasting source of contradictions and opposing views. The central phenomenon in Blind Mole Rat evolution is chromosomal diversification. Well over 50 chromosomal races (cytotypes) have been described in *Nannospalax* with diploid numbers ranging between 36 and 60 (SAVIĆ & SOLDATOVIĆ 1984, NEVO et al. 2001, SÖZEN 2004, KRYŠTUFEK & VOHRALÍK 2009). A significant proportion of races occupy Anatolia, which may be the evolutionary cradle for Blind Mole Rats (ÜNAY 1999).

Opinions on the taxonomic ranking of Blind Mole Rat cytotypes vary between authorities: the chromosomal divergence is considered either as an intraspecific phenomenon (e.g. HARRISON & BATES 1991) or an indication of speciation events (NEVO et al. 2001). As a result of these controversies the number of species in *Nannospalax* is unstable (cf. MUSSER & CARLETON 1993, 2005). Some authors have already claimed that "...each chromosomal form [of a Blind Mole Rat] must be assigned to a separate biological species" (COŞKUN et al.