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Application of cytogenetic markers in the taxonomy of flat rock scorpions (Scorpiones: Hormuridae), with the description of *Hadogenes weygoldti* sp. n.

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Abstract

In the present study, we performed the first comparative cytogenetic study in *Hadogenes* species using both standard and molecular cytogenetic approaches. Information about the diploid set, number and distribution of 18S rDNA and telomeric sequences was obtained from three South African species, *Hadogenes trichiurus* (Gervais, 1843), *H. zuluanus* Lawrence, 1937 and *H. weygoldti* sp. n. All species analysed differ considerably in the number of chromosomes (*H. trichiurus* 2n=48, *H. zuluanus* 2n=80, *H. weygoldti* sp. n. 2n=113). In contrast, the number of 18S rDNA clusters and distribution of telomeric sequences represent rather stable cytogenetic characters in *Hadogenes*. Within all karyotypes, we identified one pair of 18S rDNA clusters. The telomeric signals were exclusively on the terminal chromosomal regions. Interestingly, the chromosomal location of 18S rDNA clusters varied from terminal to interstitial in species karyotypes, indicating the presence of hidden structural chromosomal changes. Additionally, the present comparative study is complemented by the description of a new species, *H. weygoldti* sp. n., based on specific karyotype features and morphological characters. Finally, our cytogenetic results are compared with known chromosomal data of other *Hadogenes* species, and the use of cytogenetic approaches in the taxonomy of scorpions is discussed.

Keywords

Karyotype, 18S rDNA, telomere, FISH, cytotaxonomy, new species

1. Introduction

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