



Redescription of the African *Chordodes albibarbatus* Montgomery 1898, and description of *Chordodes janovyi* n. sp. (Gordiida, Nematomorpha) and its non-adult stages from Cameroon, Africa

MATTHEW G. BOLEK¹, ANDREAS SCHMIDT-RHAESA²,
BEN HANELT³ & DENNIS J. RICHARDSON⁴

¹Department of Zoology, 501 Life Sciences West, Oklahoma State University, Stillwater, Oklahoma 74078, U.S.A.
E-mail: bolekm@okstate.edu

²Zoological Museum and Institute, Biocenter Grindel, Martin-Luther-King-Platz 3, 20146 Hamburg, Germany.
E-mail: andreas.schmidt-rhaesa@uni-hamburg.de

³Center for Evolutionary and Theoretical Immunology, Department of Biology, University of New Mexico, Albuquerque, New Mexico 87131, U.S.A.

E-mail: bhanelt@unm.edu

⁴Quinnipiac University, BC-SCI, 275 Mt. Carmel Ave., Hamden, Connecticut 06518, U.S.A.

E-mail: Dennis.Richardson@quinnipiac.edu

Abstract

We redescribe *Chordodes albibarbatus* Montgomery 1898 from the original holotype male and the originally described female specimen using Nomarski interference contrast microscopy. Our reinvestigation indicates that *C. albibarbatus* is sexually dimorphic and contains five types of areoles in the male and six types of areoles in the female. Our reinvestigation of *C. albibarbatus* indicates that it is a distinct species, and is most similar to the African *Chordodes gariuzzi* Camerano 1902 and *Chordodes heinzei* Sciacchitano 1937, all of which share simple “blackberry”, bulging, tubercles, and thorn areoles. In addition, we describe adult free-living male and female *Chordodes janovyi* n. sp. collected from West Province, Cameroon, Africa using both morphological (light and scanning electron microscopy) and molecular data, and designate types for this species. *Chordodes janovyi* belongs to a large group of *Chordodes* in which simple areoles are smooth or superficially structured less so than “blackberry” areoles. Present among the simple areoles are clusters of crowned and circumcluster areoles along with thorn and tubercle areoles, whereas bulging areoles are absent. We also describe the egg strings, eggs, larvae, cysts, and oviposition behavior of *C. janovyi* and compare these non-adult life stages to other nematomorph genera and species for which such life cycle stages are known, and we discuss the use of non-adult stages and the use of molecular tools in future studies of nematomorph systematics and biodiversity.

Key words: Gordiida, gordiid, hairworm, Gordian worm, Nematomorpha, Africa, scanning electron microscopy, Nomarski interference contrast microscopy, molecular data, oviposition behavior, non-adult life stages

Introduction

With few exceptions, the genus *Chordodes* Creplin, 1874 has a tropical and subtropical distribution and is the most speciose of the 19 known nematomorph genera with around 100 reported species (Zanca *et al.* 2006a; 2006b; De Villalobos *et al.* 2007; Schmidt-Rhaesa *et al.* 2008). However, the identification and taxonomic status of many of these species is questionable. Many original species descriptions are based solely on bright field light microscopy, and limited morphological data is available from a single or a few adult worms collected from a single location. This has led some investigators to re-evaluate the genus, and currently only 54 of the species are sufficiently described to be recognized; whereas 36 species are considered *species inquirenda* and 22 species are considered *incertae sedis* (Schmidt-Rhaesa *et al.* 2008). More problematic is the fact that of the 54 currently recognized species of *Chordodes* no morphological data is known on non-