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VERSITA

A new species of *Falcaustra* (Nematoda, Kathlaniidae) from *Cnemaspis* aff. *tropidogaster* (Squamata, Gekkonidae) from Sri Lanka

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Abstract

Falcaustra desilvai sp. nov. (Ascaridida, Kathlaniidae) from the large intestine of *Cnemaspis* aff. *tropidogaster* (Squamata, Gekkonidae) is described and illustrated. *Falcaustra desilvai* represents the 4th nematode species from Sri Lanka to be assigned to the genus and is distinguished from other Sri Lankan species by the distribution pattern of caudal papillae (12 precloacal, 2 adcloacal, 10 postcloacal, and 1 median), length of spicules (956–1046 µm) and absence of a pseudosucker.

Keywords

Nematoda, *Falcaustra desilvai,* Squamata, *Cnemaspis* aff. *tropidogaster*, Sri Lanka

Introduction

During necropsy of geckos collected November 2002 in Sri Lanka, 2 specimens of the rough-bellied day gecko, *Cnemaspis* aff. *tropidogaster* Boulenger, 1885, were found to harbour a total of 17 (7 males, 10 females) nematodes of an undescribed species of *Falcaustra* Lane, 1915. *Cnemaspis tropidogaster* is a diurnal lizard of the monsoon forests of the Eastern Province and the midhills in the Central, Knuckles and Sabaragamuwa Provinces of Sri Lanka; it is also found in the Western Ghats of southwestern India (Das and de Silva 2005). There are, to our knowledge, no reports of helminths from this lizard. Species of *Falcaustra* Lane, 1915 occur in the digestive tracts of fish, amphibians, and reptiles. Of the 83 nominal species (Bursey and Freeman 2005), 3 are known from Sri Lanka: *Falcaustra falcata* (Linstow, 1906) Lane, 1915; *Falcaustra fernandoi* (Sathananthan, 1972) Baker, 1987; *Falcaustra pillaii* (Sathananthan, 1972) Baker, 1987. In Sri Lanka, these 3 species are known only from turtles (Sood 1999). The purpose of this paper is to describe a new species of *Falcaustra* from the intestine of *C. tropidogaster*.

Prior to 2006, *Cnemaspis tropidogaster* was one of only four species of the genus recognized from Sri Lanka. However, numerous new species have been described (Wickramasinghe 2006, Bauer *et al*. 2007, Wickramasinghe and Munindradasa 2007) and in the last assessment of Sri Lankan *Cnemaspis* (Manamendra-Arachchi *et al*. 2007), 22 species were recognized. This revision established that the name *C. tropidogaster* is currently applicable only to the lectotype specimen (all paralectotypes are referable to other species occurring in peninsular India and no specimens conspecific with the lectotype have been identified among recently collected Sri Lankan samples with explicit locality data). Based on this interpretation, it is unlikely that the lizard species examined in this study is *C. tropidogaster* sensu stricto. However, both the geographic distribution and range of morphological variability of most of the newly described species remain incompletely known and it is not possible to unambiguously determine to which, if any, of these the host lizard belongs. We therefore assign the host specimens to *Cnemaspis* aff. *tropidogaster*.

Materials and methods

The geckos were killed within 12 hrs of capture, preserved in 10% formalin and stored in 70% ethanol. The body cavity was opened by a longitudinal incision and the digestive tract was

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removed and opened. The oesophagus, stomach, and small and large intestines were examined for helminths under a dissecting microscope. Helminths were placed on a glass slide in a drop of glycerol and a coverslip added; identification was made from these temporary wetmounts. Drawings were made with the aid of a microprojector. Measurements are given in micrometers unless otherwise stated with mean ± 1 SD and range in parentheses.

Results

***Falcaustra desilvai* sp. nov.** (Figs 1–8)

Description (general): Nematodes with cylindrical body tapering anteriorly and posteriorly. Cuticle with fine, regular, longitudinal striations. Mouth opening triangular, surrounding by 3 large lips, each with 2 papillae. Sclerotized lip support and additional cephalic papillae not seen. One pedunculate amphid on each ventrolateral lip. Cervical papillae at level of nerve ring, inconspicuous. Oesophagus with subspherical isthmus, spherical bulb. Excretory pore anterior to isthmus. Tail conical, pointed in both sexes.

Male: Based on holotype and 5 paratypes. Length 6.89 ± 0.66 mm (6.27–8.00 mm); width at level of oesophageal-intestinal junction 287 ± 36 (230–332). Pharynx 111 ± 13 (92–122) long, corpus 1023 ± 40 (969–1071) long, isthmus 120 ± 11 (104–134) long and 63 ± 7 (55–73) wide, bulb 155 ± 16 (134–177) long and 144 ± 7 (134–153) wide. Nerve ring 282 ± 17 (256–299) and excretory pore 862 ± 47 (816–944) from anterior end, respectively. Tail 251 ± 29 (214–293) long; conical, pointed tip. Pseudosucker absent. Caudal musculature divided into 2 groups of obliquely directed muscle bands: approximately 27 (24–30) pairs in posterior group and approximately 14 (11–16) pairs in anterior group. Single median papilla approximately 30 anterior to cloacal meatus. Twelve pairs of caudal papillae, 6 pairs precloacal, 1 pair adcloacal, 5 pairs postcloacal (2 lateral, 3 ventral). Phasmids situated laterally on tail midway between lateral pairs of postcloacal papillae. Vas deferens parallel to spicules. Testis long, tapering, extending anteriorly into first third of body before turning posteriorly to terminate slightly posterior to midbody. Spicules similar, 984 ± 33 (956–1046) in length, curved, alate; gubernaculum 97 ± 12 (85–116) in length.

Female: Based on allotype and 5 paratypes. Length 11.54 ± 2.04 mm (9.09–14.08 mm); width at level of oesophageal-intestinal junction 374 ± 32 (319–408). Pharynx 129 ± 13 (116–153) long, corpus 1207 ± 110 (1071–1377) long, isthmus 161 ± 6 (153–171) long and 83 ± 12 (67–92) wide, bulb 169 ± 7 (165–183) long and 163 ± 10 (146–171) wide. Nerve ring 331 ± 24 (305–366) and excretory pore 1050 ± 1333 (893–1275) from anterior end, respectively. Tail 446 ± 64 (383–561) long. Vulva transverse slit, slightly salient, 3.66 ± 0.72 mm (2.82–4.67 mm) from posterior end; ovijector with weakly developed muscular walls approximately 500 in length, directed anterodorsally and giving rise to 2 opposing uteri. Uteri lying within second and third quarters of body. Eggs oval, 68 ± 4 (61–73) × 45 ± 3 (40–49), thick shelled, unembryonated.

Taxonomic summary

Type host: Rough-bellied day gecko, *Cnemaspis* aff. *tropidogaster* Boulenger, 1885.

Type locality: Helboda (07°05′37″N, 80°39′26″E), Kandy District, Central Province, Sri Lanka.

Site of infection: Large intestine.

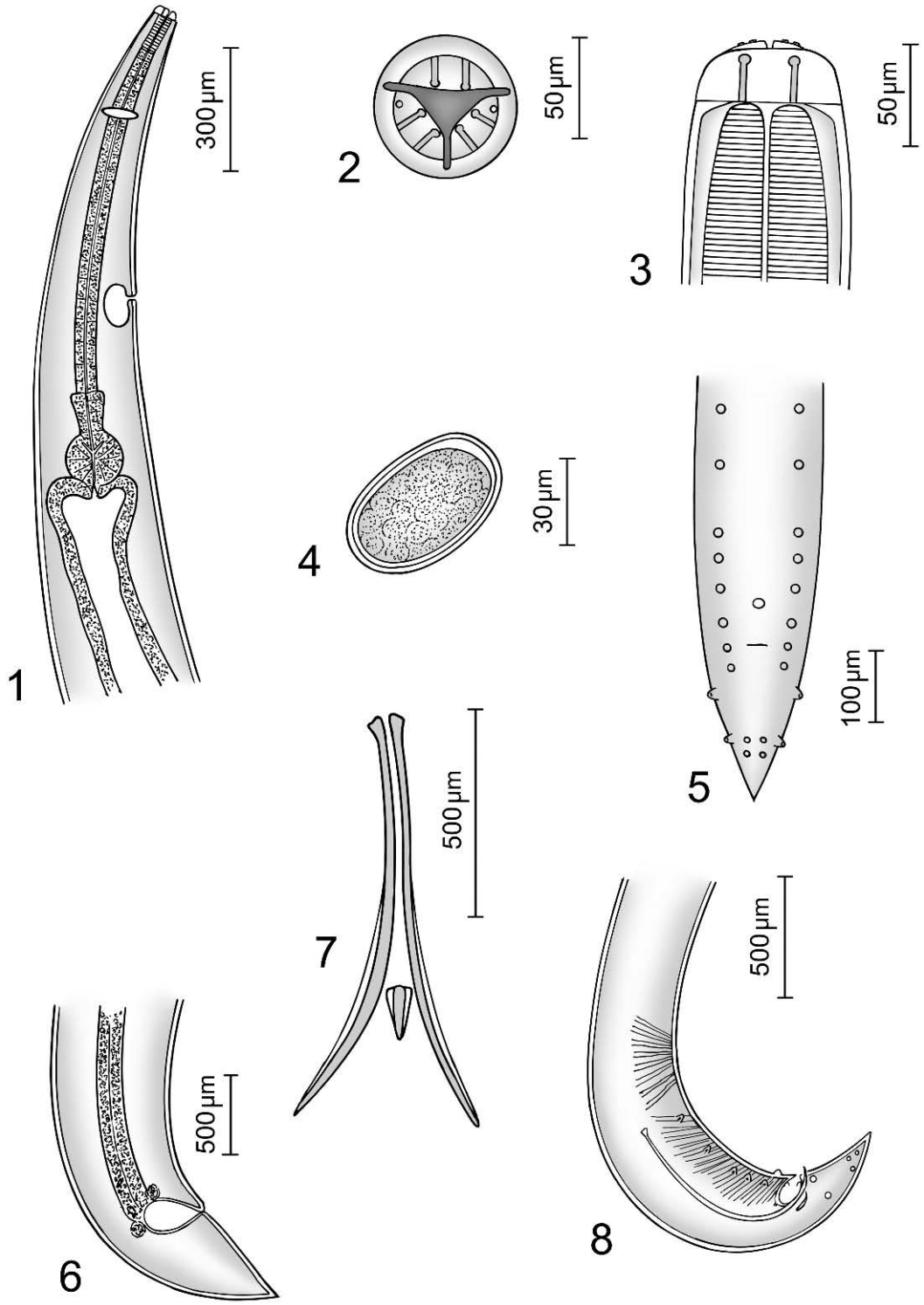
Type specimens: Holotype male, USNPC 101133; allotype female, USNPC 101134; paratypes 4 males, 5 females, USNPC 101135.

Etymology: The new species is named for Anslem de Silva, founder of ARROS (Amphibian and Reptile Research Organization of Sri Lanka) in recognition of his scholarly contributions to the herpetology of Sri Lanka and his lifelong dedication to promoting public appreciation of reptiles and amphibians.

Remarks

The structure of the oesophagus of *F. desilvai* sp. nov. allows its assignment to the family Kathlaniidae Lane, 1914, subfamily Kathlaniinae Lane, 1914. *Falcaustra* was established by Lane (1915) when he redescribed *Oxysoma falcatum* Linstow, 1906, a nematode from the intestine of the Indian black turtle, *Melanochelys* (= *Nicorina*) *trijuga* (Schweigger, 1812) and discovered *Oxysoma* to be preoccupied. Chabaud (1978) characterizes *Falcaustra* as having simple lips, a pharynx and a generally spherical isthmus immediately anterior to the oesophageal bulb. Lane (1915) described the posterior portion of the oesophagus to be hourglass shaped, while Chitwood and Chitwood (1974) state that the isthmus in kathlaniid nematodes is "subspheroid". These characters are evident in *F. desilvai* (Fig. 1), although "flask-shaped" might be a more apt description in this case.

Species of *Falcaustr*a are distinguished on the basis of characteristics of the male: number and arrangement of caudal papillae, length of spicules, and presence or absence of a pseudosucker (see Table I of Bursey *et al*. 2000 and Table I of Bursey and Kinsella 2003). *Falcaustra desilvai* is most similar to *F. pretiosa* (Ingles, 1935) Freitas et Lent, 1941, a Neotropical anuran parasite. These 2 species are the only ones known to possess 12 pairs of caudal papillae and lack a pseudosucker. However, *F. pretiosa* has 6 pairs of postcloacal but no adcloacal papillae in contrast to the 5 pairs postcloacal and 1 pair adcloacal papillae in *F. desilvai*. The spicules of *F. pretiosa* are shorter, 810–870 in contrast to 956–1046 in *F. desilvai*. The new species should be added to Table I of Bursey *et al*. (2000): *F. desilvai*, lizard type host, spicule length 0.96–1.05 mm, papillae pattern 12–2–10 + 1, pseudosucker absent.



Figs 1–8. *Falcaustra desilvai* sp. nov.: **1.** Female, anterior end, lateral view. **2.** Female, en face view. **3.** Female, anterior end, dorsal view. **4.** Egg. **5.** Male, posterior end ventral view (diagrammatic). **6.** Female, posterior end, lateral view. **7.** Gubernaculum and spicules, ventral view. **8.** Male, posterior end, lateral view

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