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Synoecnema watinagii (Drilonematoidea: Ungellidae: Synoecneminae), a new nematode species parasitic in earthworms from the Philippines with the first molecular and SEM data for the genus

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Abstract

A new species of the genus *Synoecnema*—*S. watinagii* **sp. n.**—is described and illustrated. The species is characterized by its small size, lack of sexual dimorphism apart from sexual characters, males with pericloacal disk, females with anterior vulva position and lacking an anus, and similar caudal organs in both sexes in the shape of long, deep slits on the surface of the posterior half of body. Sequences of D2-D3 LSU and SSU rDNA and SEM images were obtained for the first time for the genus *Synoecnema*. Phylogenetic analysis of these sequences supported the validity of the genus and elucidated its relationships within Synoecneminae and Drilonematoidea. The earthworm host was characterized by its *Cox*I mt DNA sequence.

Key words: 18S rDNA, 28S rDNA, Megascolecidae gen. sp., molecular, morphology, morphometrics, new species, phylogeny, SEM, taxonomy

Introduction

To date, four species belonging to 3 families of Drilonematoidea have been recorded from earthworms from the Philippines: *Synoecnema drawidae* Baylis, 1943, *Synoecnema* (=*Siconemella*) *philippinensis* Timm, 1967 (Ungellidae, Synoecneminae), *Filiponema philippinense* Timm & Maggenti, 1966 (Drilonematidae) and *Scolecophilus mus* Timm, 1967 (Scolecophilidae) (Baylis, 1943; Timm, 1966 a, b; Timm & Maggenti, 1966).

Recently, nematodes were found in pherethimoid earthworms collected at Tinago Falls, Linamon, Lanao del Norte, Philippines. The nematodes were recovered from the coelomic cavity and were present in all its parts except tail segments. Nematodes were not attached to muscles or septa by hooks but were practically immobile: except for slight jerking of the head end no movement was observed. The nematodes were assigned to the genus *Synoecnema* Magalhaes, 1905 (Synoecneminae, Ungellidae) based on morphology, being characterized by the presence of slit-like caudal organs stretched along each lateral side of the posterior portion of the body of both sexes. Further morphological examination of the nematodes revealed that they represent a new species, described below. We also present SEM images and molecular data which are the first obtained for a member of the genus *Synoecnema*.

Material and methods

Parasitological procedures. Earthworms were collected at Tinago Falls, Linamon, Lanao del Norte, Philippines (8º9'32"N, 124º11'11"E) and dissected alive. Nematodes were washed out from the coelom into a watch glass with Ringer's solution and then picked up by a needle. Four out of 6 earthworms were each infected by 1–7 females and 1–7 males of *S. watinagii* **sp. n.** Two individuals were frozen for DNA extraction and the rest were fixed by adding

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