



## Two new species of *Siconema* (Drilonematoidea: Ungellidae) parasitic in earthworms in Vietnam, and systematic relationships as inferred from ribosomal sequence data

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### Abstract

Two new species of *Siconema* (Drilonematoidea: Ungellidae) from Pu Mat Nature Reserve, Vietnam are described and illustrated. *Siconema ovicallosum* **sp. n.** is characterised by a wide female body, female caudal organs displaced to posterior extremity followed by short tail tip; males short, slim with caudal organs near cloacal opening and long, conical posterior portion of tail; cephalic hooks in both sexes with sturdy base and thin, diverging blade tips; tubular stoma incorporated in hooks base; eggs with very thick shells and two suberose polar caps. It is most similar to *S. laticaudatum* Ivanova & Pham Van Luc, 1997 but is distinguished by much smaller males, their caudal organs, and the shape and ornamentation of eggshells. *Siconema diducuncinum* **sp. n.** is characterised by a stoma that is confined in a tube that protrudes between thin hooks with widely distributed blades, caudal organs situated at long distance from the tail tip, eggs in the shape of a double-poled elongated lemon and presence of a copulatory disc in males. *Siconema diducuncinum* **sp. n.** is most closely related to *S. sinense* Timm, 1966 but differs from it by having rounded *vs* elongate pharyngeal bulb, thinner and smoother eggshells with more pronounced polar caps, twisted *vs* straight ovary and a copulatory disc in males. By an elongated tail spike and bristling hook blades, *S. diducuncinum* **sp. n.** shares similarities with *S. neozelandicum* Yeates & Spiridonov, 1996 but differs in having a non-amalgamated hook base, presence of projecting stomatal tube, differently ornamented eggshells and a copulatory disk in males. A key to species of *Siconema* is given. Phylogenetic relationships of the new species and other drilonematids are discussed.

**Key words:** new species, drilonematids, ungelids, earthworms, Vietnam

### Introduction

The genus *Siconema* Timm, 1966 parasitizes coelomic cavities of terrestrial oligochaetes of the superfamily Megascocoloidea (Timm 1966, Spiridonov & Ivanova 2005, Spiridonov, Ivanova & Pham Van Luc 2007). It predominates in pheretimoid oligochaetes native to South–East Asia and Australasia. Several pheretimoid species (*Amyntas leucocircus* (Chen), *A. lignophilus* (Thai), *A. mucrorimus* (Chen)) are known to be particularly susceptible to invasion of drilonematids, playing host to several genera and families of parasites (Spiridonov & Ivanova 2005).

A specimen of the earthworm host can be found infected by 1–5 species of drilonematids (Ivanova & Spiridonov 1987, Spiridonov & Ivanova 1998). Typically, each nematode genus except *Siconema* and, rarely, *Homungella*, is represented by a single species. Two new species of *Siconema* described below were found in the same host, *Amyntas tuberculatus* (Gates), in Vietnam.

The genus *Siconema* presently contains 25 valid species: *S. aculeatum* Spiridonov, 1992, *S. aequicrassum* Spiridonov, 1993, *S. annamense* Spiridonov & Danilova, 1986, *S. bahli* Spiridonov & Danilova, 1986, *S. baviense* Spiridonov & Ivanova, 1998, *S. duplicoeca* Spiridonov & Danilova, 1986, *S. hatayense* Ivanova & Pham Van Luc, 1997, *S. inaequicrassum* Spiridonov, 1993, *S. laotense* Spiridonov, 1993, *S. laticaudatum* Ivanova & Pham Van