A New Genus, *Pseudhalenchus* (Tylenchinae: Nematoda), With Descriptions of Two New Species*

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Populations of animals that strikingly resemble several known genera, but that are difficult to assign to any one, often come to the attention of investigators. Such a case was encountered recently with terrestrial nematodes that appeared closely related to the genera *Halenclius* Cobb, 1933, *Ditylenchus* Filipjev, 1934, and *Tylenchus* Bastian, 1865. A superficial examination revealed nematodes of a phlegmatic nature, resembling *Ditylenchus*. More critical studies of preserved specimens showed the animals also to resemble *Tylenchus*, but to differ mainly in the position of the esophageal glands which lie free in the body, overlapping part of the intestine, while in *Tylenchus* and *Ditylenchus* the glands are inclosed in a bulb. Several morphological and anatomical characteristics of these specimens indicated, however, that they were most closely related to *Halenclius* *fuscicola* (de Man and Barton in de Man, 1892) Cobb, 1933, a marine species. An examination of the descriptions and figures of *H. fuscicola* as well as the other species believed to be in the genus has necessitated an emendation of the generic description of *Halenclius*.

Because of the relationship of the characters of the two new species involved with those of *H. fuscicola*, the type species of the genus *Halenclius*, the nomen *Pseudhalenchus* n. gen. is proposed for their reception.

*Pseudhalenchus*, n. gen.

**Description**: *Tylenchinae*. Both sexes similar in appearance. Somatic annulation light to moderately heavy. Lip region annulation moderate to indistinct. Labial framework sclerotized. Stomatostyle well developed, usually with distinct knobs. Deirid (cervical papilla) observed on some specimens.

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Metacorpus bulb of esophagus valvate with distinct outline. Esophageal glands overlapping intestine. Ovary monodelphic and prodelphic. Vulva situated in posterior third of body. Rudimentary posterior uterus present. Male with well-defined spicules and gubernaculum, with bursa (caudal alae) enveloping one-third to two-thirds of tail. Lateral fields present, phasmids not observed in either lateral or dorso-ventral view. Tail of both sexes elongate-conoid, tapering, with minutely-rounded to broadly-rounded terminus.

**Diagnosis:** Genus differing from the most closely related genus *Halenchnus* Cobb, 1933, in the absence of a consistently ventrally-hooked tail, the presence of a well-defined metacorpus with valves, and by its terrestrial habitat as opposed to the marine habitat of *Halenchnus*. Differing from both *Ditylenchus* Filipjev, 1934, and *Tylenchus* Bastian, 1865, in its esophagus, the basal portion of which overlaps the anterior portion of the intestine as opposed to the distinct basal esophageal bulb formed by the two aforementioned genera.

The name "*Pseudhalenchus*" connotes "false *Halenchnus*." It is of Greek derivation and consists of "pseudes" meaning false, "halos" meaning sea, and "enclios" meaning spear.

**Type species:** *Pseudhalenchus minutus*, n. gen., n. sp.

**Measurements:** 12 females: L = 0.412 mm. (0.348-0.486 mm.); a = 29.7 (28.5-31.7); b = 3.3 (3.0-3.6); e = 8.3 (7.6-9.9); V = 3073 (72-74 percent).

7 males: L = 0.332 mm. (0.309-0.365 mm.); a = 32.5 (30.9-34.2); b = 3.1 (2.9-3.3); e = 7.9 (7.5-8.3); T = 32 percent (28-35 percent).

Body assuming a slightly ventrally arculate position when killed by gradual heat. Annulation moderate, becoming coarser in caudal region (Fig. 1, K). Lip region set off slightly, bearing 5 annules and terminating in lightly sclerotized labial framework (Fig. 1, B). Female stylet 8.5 (6.9-10.1) microns long; male stylet 8.2 (7.8-8.4) microns long, usually somewhat thinner than female stylet. Knobs on stylet inclined posteriorly. Orifice of dorsal esophageal gland about 2-3 microns behind stylet base. Hemizonid readily apparent, 2 annules long, immediately anterior to excretory pore, appearing to transversely overlap 1/3 of the body circumference. Excretory pore situated 63 (56-71) microns from anterior end. Esophagus expanding to form elongate, weakly muscular metacorpus with a sclerotized valvular apparatus. Isthmus of esophagus narrow, encircled by nerve ring. Posterior portion of esophagus often exhibiting gland nuclei (Fig. 1, A), overlapping intestine. Ovary monodelphic and prodelphic, outstretched; spermatozoa present in receptaculum seminis (spermatheca) of female. Vulva transverse, rarely protruding. Rudimentary posterior uterus about 2/3 as long as width of corresponding body diameter (Fig. 1, E), actually measuring 6.4 (5.3-7.7) microns. Testis of male outstretched. Spicules arcuate, 12.9 (11.9-13.8) microns long, cephalated proximally. Gubernaculum 3.3 (3.0-3.7) microns long, with slight flexure (Fig. 1, D). Bursa (caudal alae) beginning anteriorly in region of spicule cephalation, terminating at about 1/3 the tail length. Tails of both sexes tapering uniformly, ventrally inclined near the minutely rounded terminus (Fig. 1, C). Female tail somewhat variable in shape (Fig. 1, C, G, H, I, and J). Deirids (cervical papillae) observed on some specimens. Lateral alae appear as four lines (Fig. 1, F) which become...
indistinct in caudal region (Fig. 1, K). Phasmids not observed in either lateral or ventral views.

**Holotype**: Female collected by the author March 2, 1956. Slide 1, Tray 1, Cabinet C-2724, Nematode Collection, Citrus Experiment Station, Lake Alfred, Florida.

**Paratypes**: One male, Slide 2, Tray 1, Cabinet C-2724, Nematode Collection, Citrus Experiment Station, Lake Alfred. One female and male, slides 106 and 107 respectively, University of California Collection, Berkeley. One male, three females, and one larva in author's possession.

**Type Habitat**: Soil and organic debris obtained from tracks of a bulldozer eradicating citrus trees.

**Type Locality**: Citrus grove owned by Waverly Growers' Cooperative, North of Star Lake, Lake-of-the-Hills, Florida.

**Other Hosts and Localities**: Nine females, 3 males, and 3 larvae from *Podocarpus* sp, roots and soil, Lynn McNeer Nursery, Okahumpka, Florida, collected by R. F. Suit, October 20, 1956. Two females from tracks of a bulldozer eradicating citrus trees, Estes Grove, Alturas, Florida, collected by V. L. Smith, August 13, 1956. One female and one larva from *Fragaria* sp, roots and soil, Dave Allen farm, Lithia, Florida, collected by the author, February 12, 1957. One female and one larva from *Citrus* sp, roots and soil, H. V. Grumbach Grove, Cherry Lane and Lateral A Road, Vero Beach, Florida, collected by the author, October 23, 1956. One female from *Citrus* sp, roots and soil, J. J. Schumann Grove, Clemens Avenue and Oslaw Road, Vero Beach, Florida, collected by the author, October 23, 1956.

**Diagnosis**: *Pseudhalenclms* of relatively small size (0.412 microns average length), moderate annulation, short vestigial posterior uterus sac (6.4 microns average length), and exhibiting four incisures in the lateral field.

*Pseudhalenclms anchilisposomus*, n. sp. (Fig. 2 A-J)

Measurements: 19 females: L = 0.624 mm. (0.487-0.728 mm.); a = 33.9 (30.6-39.9); b = 4.7 (4.1-5.1); c = 12.3 (11.1-13.2); V = 4281 (78-83) percent.

5 males: L = 0.584 mm. (0.428-0.678 mm.); a = 44.1 (38.6-48.4); b = 4.3 (3.8-5.1); c = 9.9 (7.8-11.4); T = 49 percent (41-57 percent).

Somatic annulation fine to indistinct on preserved specimens. Lip region continuous with body (Fig. 2, A, C), faintly annulated in some specimens. Lips six in number; the submedian lips each bearing three faint papillae, and the lateral lips each appearing to bear an amphid aperture (Fig. 2, B). Female stylet 8.8 (7.6-10.8) microns long; male stylet 8.3 (6.2-9.9) microns long. Hemizonid protruding slightly, directly in front of excretory pore. Excretory pore situated 81 (74-95) microns from anterior end. Esophagus exhibiting weakly muscular metacorpus equipped with valves. Posterior portion of esophagus overlapping intestine (Fig. 2, G). Ovary monodelphic and prodelphic; outstretched. Vulva transverse, usually protruding slightly (Fig. 2, A, D). Rudimentary posterior uterus about 1 1/2-2 1/2 times as long as width of corresponding body diameter, actually measuring 32 (20-41) microns long. Testis of male outstretched, spicules areuate 18.5 (17.1-20.3) microns long (Fig. 2, E, F). Gubernaculum 6.3 (5.5-7.2) microns long. Bursa (caudal alae) usually beginning in region of spicule cephalation, terminating at 1/4 to 3/8 the tail length. Tails conical with minute- to broadly-rounded termini (Fig. 2 A, D, I, J). Lateral field exhibits six incisures (Fig. 2, H). Phasmids not observed.
Fig. 1. *Pseudhalenchus minutus*. A-K. Specimens from Lake of the Hills, Florida. A. Female esophageal region; B. Stomatal region of female; C. Female tail; D. Male Tail; E. Vulva and posterior uterine branch; F. Lateral field at middle of female body; G-J. Female tail shapes; K. Lateral field and annulations on female tail.
The specific name “anchilisposomus” is of Greek derivation and consists of “anchi” meaning near, “lispos” meaning smooth, and “soma” meaning body. *Pseudalenchus anchilisposomus*, when translated literally, means “false Halenchus (with) nearly smooth body.”

**Diagnosis:** *Pseudalenchus* of moderate size (624 microns average length), with fine to indistinct somatic annulation, relatively long vestigial posterior uterus (32.1 microns average length) exhibiting six incisures in the lateral field.

**Holotype:** Female collected by S. A. Sher and M. W. Allen, January 4, 1952. Slide 108, University of California Collection, Berkeley.

**Paratypes:** One female, Slide 109, University of California Collection, Berkeley. One en face mount of female head, and 2 females, Slides 12, 13, and 14 respectively, Tray 1, Cabinet C-2724, Nematode Collection, citrus Experiment Station, Lake Alfred, Florida. Two females in author’s possession.

**Type Habitat:** Soil around roots of grass.

**Type Locality:** Fifty feet east of steps, east side of Gianinni Hall, University of California, Berkeley, California.


**Differential Diagnosis Between Species (Average Measurements, in microns unless otherwise shown).**

<table>
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<tr>
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<th><em>P. minutus</em></th>
<th><em>P. anchilispomus</em></th>
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<tr>
<td>Body length</td>
<td>412.9</td>
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<td>α</td>
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<td>11.8</td>
</tr>
<tr>
<td>Stylet Length</td>
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<td>8.8</td>
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<tr>
<td>Vulva***</td>
<td>73.0%</td>
<td>81.0%</td>
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<tr>
<td>Ovary***</td>
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<td>42.0%</td>
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<tr>
<td>Rudimentary posterior uterus, length</td>
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<td>32.1</td>
</tr>
<tr>
<td>Testis***</td>
<td>33.0%</td>
<td>49.0%</td>
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<tr>
<td>Spicule length</td>
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<tr>
<td>Gubernaculum length</td>
<td>3.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Bursa (caudal alae)</td>
<td>occupes approx.</td>
<td>occupes approx.</td>
</tr>
<tr>
<td>Body Annulation</td>
<td>1/3 of tail</td>
<td>1/3 of tail</td>
</tr>
<tr>
<td>Lateral Field</td>
<td>4 incisures</td>
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*As calculated using length from anterior end to base of esophageal lobe.

**Distance of vulva from anterior end expressed as percentage of total length.

***Length expressed as percentage of total body length.