

Four Unrecorded Plant Parasitic Nematodes from Korea (Tylenchida: Nematoda)

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한국 미기록 4種의 植物寄生線虫에 관하여

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ABSTRACT

In present works on plant parasitic nematodes, two genera and four species are newly recorded from Korea. The unrecorded species are as follow; *Aphelenchoides parasaprophilus*, *Paraplenchus myceliophthorus*, *Helicotylenchus belli*, *Quinisulcius capitatus*.

INTRODUCTION

Ninety eight plant parasitic nematode species belonging to 42 different genera was recorded from Korea, hitherto. Recently the author found four unrecorded plant parasitic nematodes. Therefore plant parasitic nematodes from Korea totally 102 species, 44 genera, 18 families in 2 order were recorded.

DESCRIPTION

Aphelenchoides parasaprophilus Sanwal, 1965

(Fig. 1.)

Measurements: Female (n=11)

L=600~750 μ m; a=30~37; b=8.0~9.0; c=15~16; V=69~71; postuterin sac=74~93 μ m; vulva-anus distance=152~192 μ m; tail length=40~55 μ m; stylet=11~12 μ m.

Male (n=8)

L=550~750 μ m; a=30~37; b=7.1~9.0; c=14~17; T=64~70; stylet=12~13 μ m; dorsal limb of spicules=21~22 μ m.

Female. Head region off set by a constriction. Lip region about one third of the widest body width. Cuticle with fine transverse striations. Lateral fields about one fourth of body diameter at middle of body, with four lateral incisures. Stylet 11~12 μ m long, without well developed knobs. Procorpus narrow. Median oesophageal bulb longer than with well developed valve. Intestine begins immediately behind median oesophageal bulb. Nerve ring less than one bulb length posterior to median bulb. Excretory pore at the level of nerve ring. Vulvar lip slightly elevated from the general surface of body. Female with a single gonad, prodelfiphic and post uterine sac well developed, 74~93 μ m long, 48% of the distance from vulva to anus. Tail 40~55 μ m long, about four times anal diameter with a sharply acuminated tip bearing fine hair-like mucro.

Male. General shape same as in female. Stylet 12

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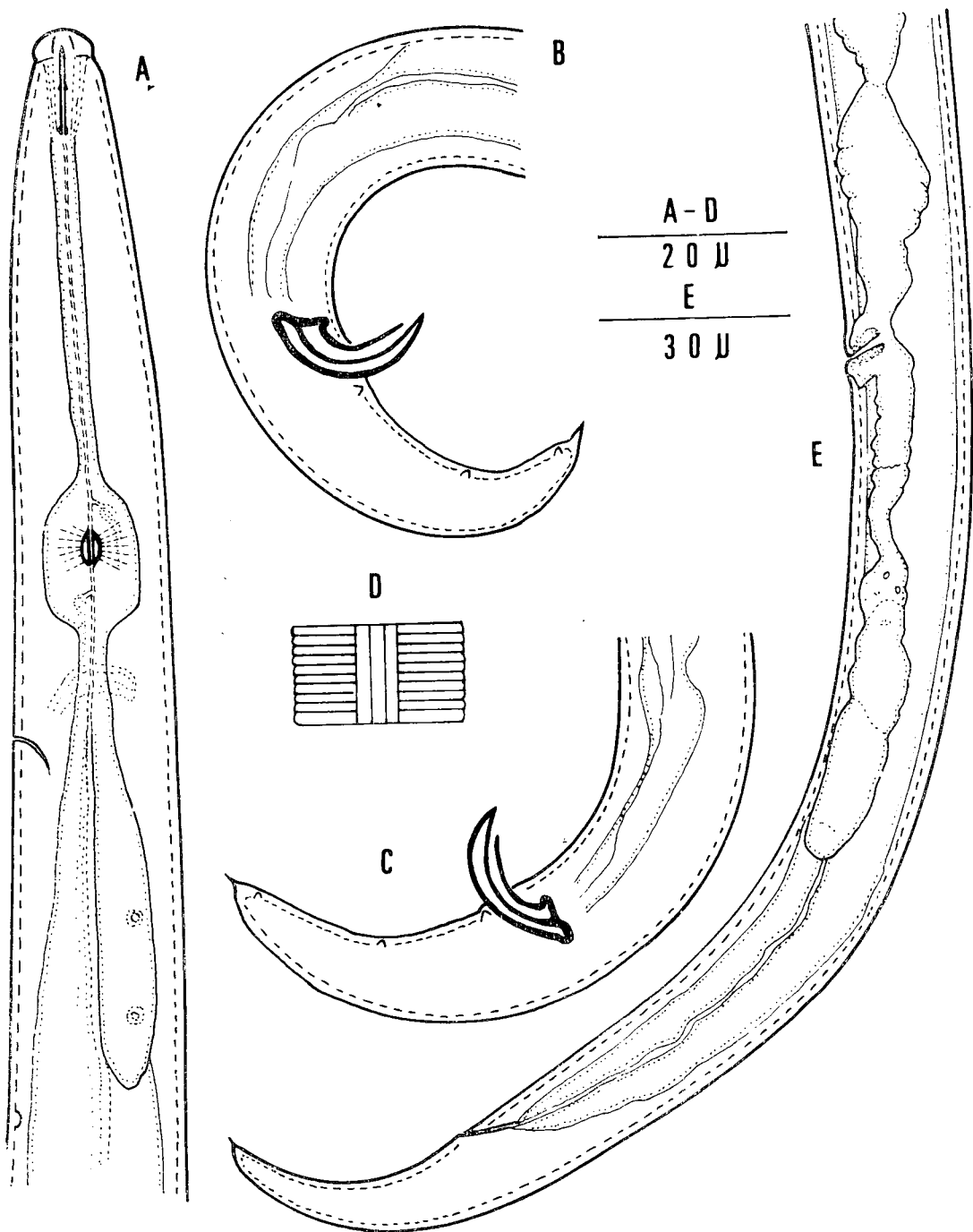


Fig. 1. *Aphelenchoides parasaprophilus*: A: Female anterior region; B-C: Male tail; D: Lateral field; E: Female posterior region.

~13 μ m long. Single testis extending anterior almost to the excretory pore. Spicules smoothly curved with smoothly rounded tip, dorsal limb 21 μ m long; ventral limb 10 μ m long with a pointed tip and does not reach the tip of the dorsal limb. Tail acuminate at the tip. Tail region strongly curved 180° when relaxed by gentle heat and bears three pairs of caudal papillae; one pair adanal, one midway along the tail and the third pair near the base of the spine-like termination.

Locality: 3 Ri, Dogae, Doam Myeon, Pyeongchang district, Kangweon province.

Habitat: Soil around potato (*Solanum tuberosum* L.)

Paraphelenchus myceliophthorus Goodey, 1958

(Fig. 2.)

Measurements: Female (n=8)

L=810~955 μ m; a=27~34; b=6.0~6.7; c=15~17; V=72~75; stylet=15~17 μ m; G1=51~60; vulvar distance=155~182 μ m; postuterin sac=77~90 μ m; head-median valve=77~87 μ m; Median valve-terminal bulb=62~73 μ m; head-excretory pore=120~132 μ m; tail length=50~60 μ m.

Male (n=6)

L=755~875 μ m; a=30~35; b=5.5~5.9; c=19~23.5; T=56~75; stylet=17 μ m; spicule=23~24 μ m; gubernaculum=8~10 μ m; head-median valve=73~80 μ m; median valve-terminal bulb=58~63 μ m; head-excretory pore=114~122 μ m; tail length=37~40 μ m.

Female. Body straight when heat killed. Cuticle with very fine transverse striations, about 1 μ m apart in mid-body region. Lateral field about 1/3 body width with 6 incisures. Head not off set from the body and without annules. Stylet 16 μ m (15~17) long, without basal knob. Procorpus is long and cylindrical. Median bulb well developed with large crescentic valve. Dorsal oesophageal gland opens in the median bulb. The basal bulb not overlapping intestine. The excretory pore 2~3 annules anterior to the hemizonid or located 120~130 μ m from anterior end. Nerve ring just anterior the basal bulb and derids are found at the level of hemizonid. Female with a single gonad, prodelphic and post uterin sac 77~90 μ m long, about 3 vulval-body width or 42~53% of the distance from vulva to anus. Vulva lips

slightly protuberant. Tail length 55~60 μ m or about four anal body diameters long, terminus with a pair of subterminal papillae.

Male. General shape same as in female. Spicule slightly curved and about 23~24 μ m long. The gubernaculum about 8~10 μ m long. The blunt tail 37~40 μ m long, with three pairs of subventral caudal papillae; one pair adanal, slightly posterior to cloaca, one pair at about half the tail and one pair subterminal.

Locality: Geum mari, Iedong Myeon, Nam Hae district, Gyeong Nam province.

Habitat: Soil around potato (*Solanum tuberosum* L.)

Helicotylenchus belli Sher, 1966

(Fig. 3.)

Measurements: Female (n=8)

L=655~740 μ m; a=24.5~28.0; b=5.0~6.0; b'=4.2~4.5; c=25.5~37.0; V=53~62; stylet=27~30 μ m; O=20~33; m=46~50.

Female. Body usually loose spiral shape. Lip region rounded with 4~5 annules. Stylet 27~30 μ m long, stylet knobs with flattened or slightly indented anterior surface. Oesophageal gland lob lies laterally and slightly overlapping intestine ventrally. Lateral field with four incisures. Excretory pore anterior to level of oesophago-intestine valve, located at 107~120 μ m from head end. Hemizonid just anterior to excretory pore. Spermatheca without sperm. Phasmids 1~3 annules posterior to anus level. Tail more curved dorsally with 12~16 annules, terminus annulated truncate and concave.

Male. not found.

This populations rather closely resembles to *H. belli* but some differences with the original description were noted; Tail shape truncate and concave, oesophageal gland lobe lies more laterally. Excretory pore anterior to level of oesophago-intestine valve and phasmids 1~3 annules posterior to anus level.

Locality: Daegiri, Wangsan Myeon, Myungju district, Gwangweon province.

Habitat: Soil around potato (*Solanum tuberosum* L.).

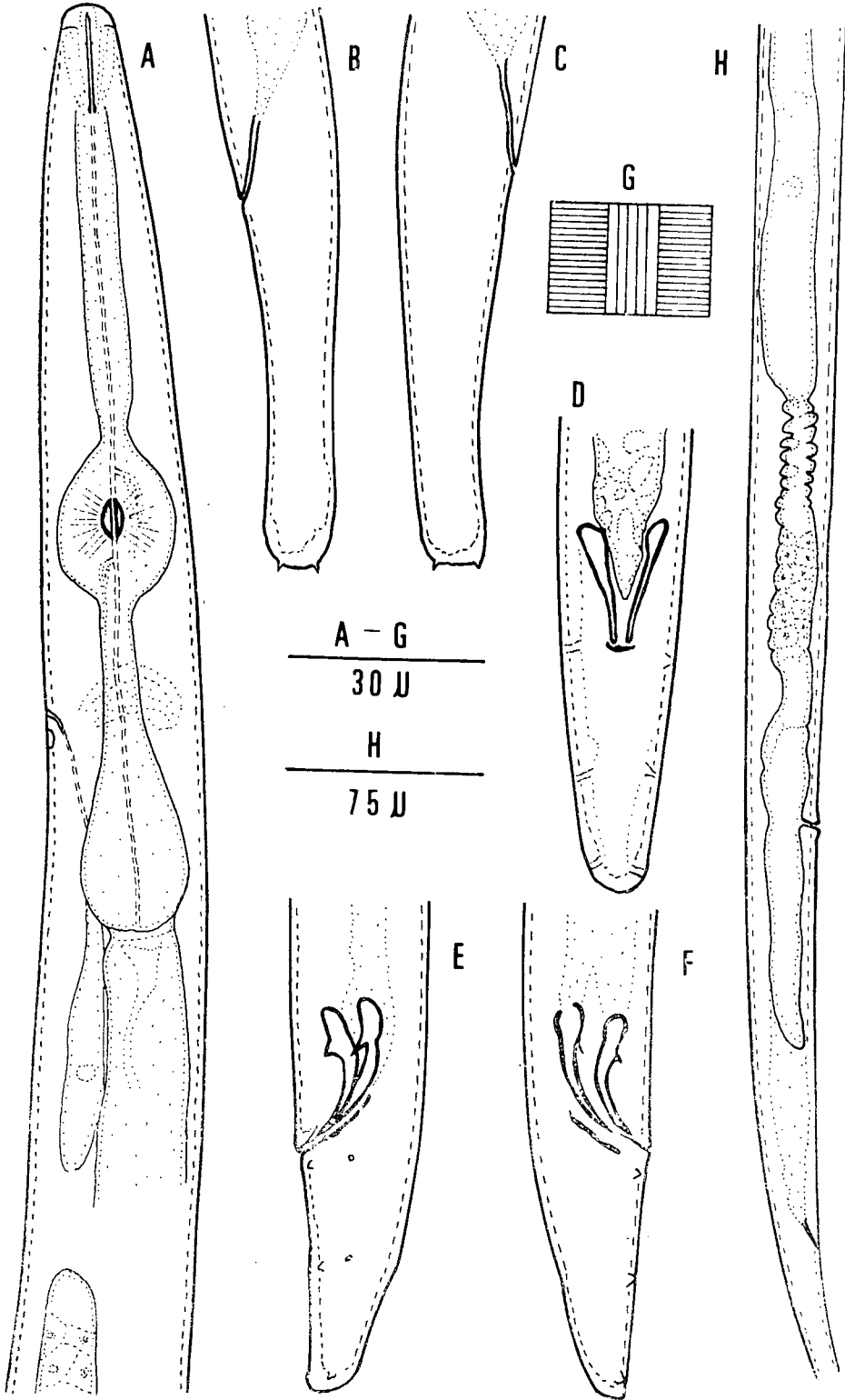


Fig. 2. *Paraphelenchus myceliophorus*: A: Female anterior region; B-C: Female tail, dorsal view; D: Male tail, ventral view; E-F: Male tail, lateral view; G: Lateral field; H: Female posterior region, showing post-uterin sac.

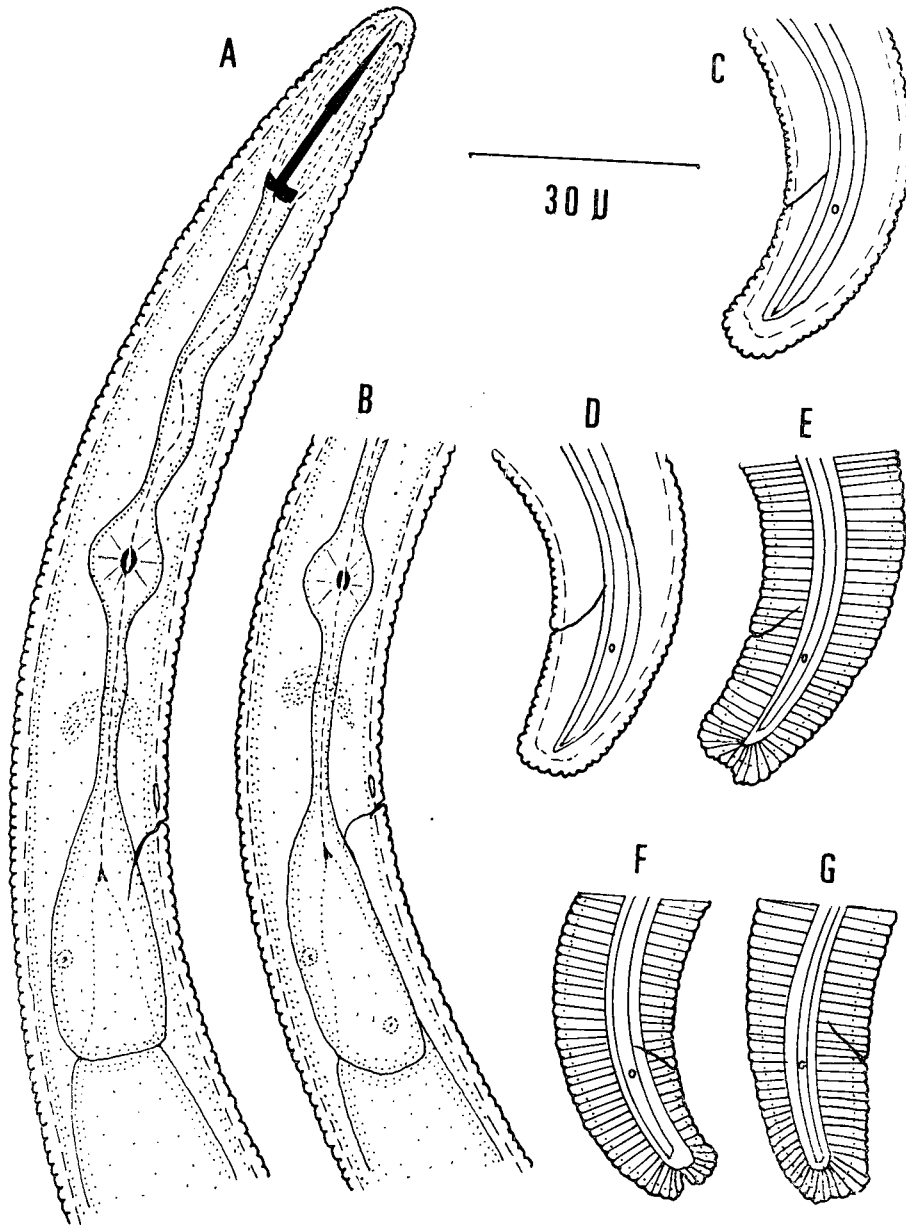


Fig. 3. *Helicotylenchus belli*: A: Female anterior region; B: showing basal oesophageal gland lobe; C-G: Variations of the tail.

Quinisulcius capitatus Allen, 1955

(Fig. 4).

Measurements: Female (n=10)

L=640~810 μ m; a=30~40; b=5.0~5.6; c=15~
; V=53~58; stylet=17~18 μ m; T/ABW=2.5~
8; tail length=40~50 μ m.

Female. Body usually arcuate posterior to vulva.

Cuticle finely striated about 1 μ m apart at mid body. Lip region expanded, hemispherical off set by deep constriction with 5~6 annules. Labial frame work moderately sclerotized. Orifice of dorsal oesophageal gland 2.5~3.0 μ m behind spear base, stylet 18 μ m long with large knobs. Median bulb well developed, occupied 2/3 body width. Isthmus very slender four times as long as neck width. Lateral field with

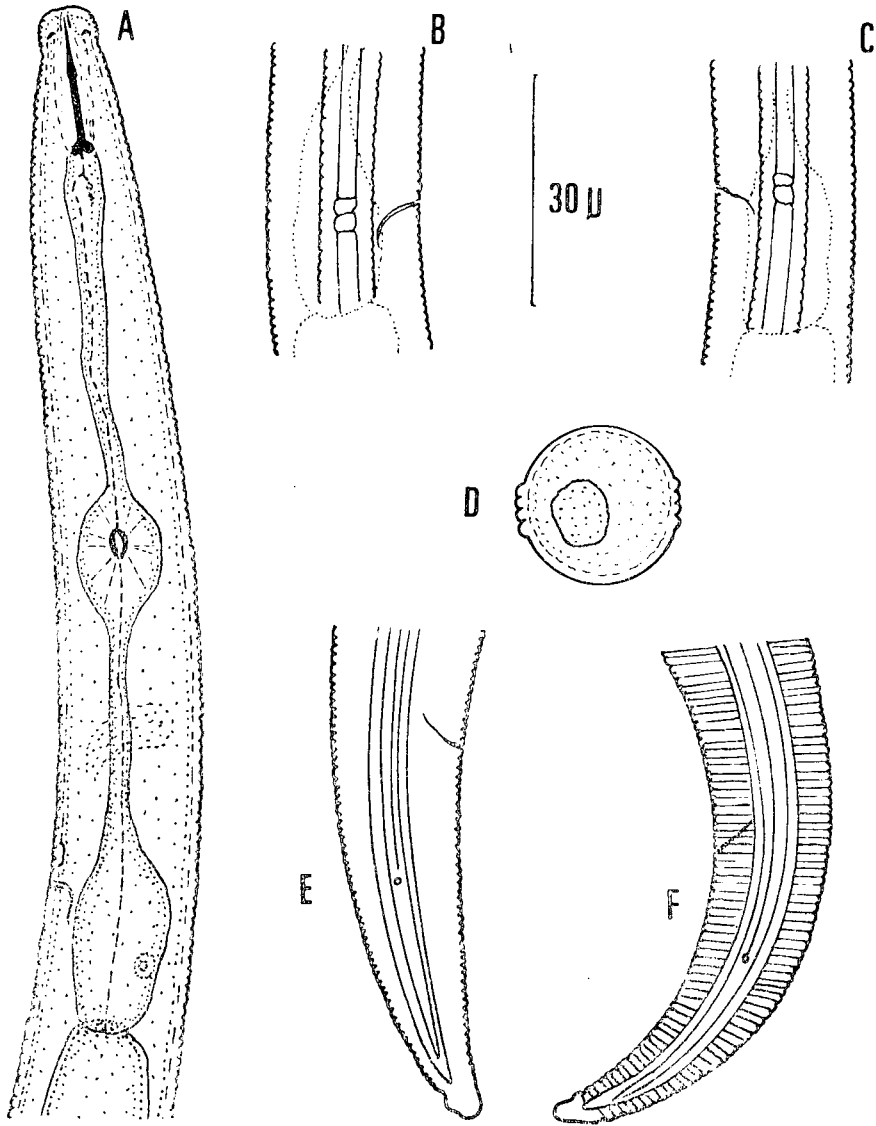


Fig. 4. *Quinsulciuscapitatus*: A: Female anterior region; B-C: showing areolated inner line of lateral field at excretory pore level; D: Cross section at mid-body; E-F: Variations of the tail.

5 incisures, 2~3 annules areolated at excretory pore level, the middle incisures begins from excretory pore level and terminating at the phasmid. Excretory pore opens at anterior to middle of basal oesophageal bulb. Ovaries out stretched, spermatheca inconspicuous, not off set, without sperm. Phasmids at anterior 1/3 of tail length. Tail conoid, ventrally curved with 34~50 annules, terminus smooth, bluntly projected. Tail 40~50 μ m long, 2.5~2.8 times anal body width.

Male. not found.

The population slightly different from the original description as follow; Tail with 34~50 annules instead of 26 annules. Phasmids located slightly anterior. Middle band of lateral field areolated at excretory pore level.

Locality: Sam Moon Dong, Milyang Eup, Gyeon Nam province.

Habitat: Soil around red pepper (*Capsicum annum* L.).

摘 要

植物寄生性 線虫을 調査중 Tylenchida 11에 속하는 *Aphelenchoides parasaprophilus*, *Paraphelenchus myceliophthorus*, *Helicotylenchus belli*, *Quinisulcius capitatus* 등 4種의 우리나라 미기록種을 발견하고 형태적 특징을 기술하였다. 이중에 *Paraphelenchus*屬과 *Quinisulcius*屬은 우리나라 미기록屬이다. 따라서 현재까지 植物寄生 線虫은 211 18科 44屬 102種이 발견되었다.

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