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Two Genera of Trichodoridae (Trichodoroidea : Nematoda) New to Korea.

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韓國未記錄 Trichodoridae 科線虫 (Trichodoroidea : Nematoda) 에 關하여

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Abstract

Trichodorus cedarus Yokoo, 1964 and *Paratrichodorus porosus* (Allen. 1957) Siddiqi 1973 were identified and described from the speciemens collected during the nationwide survey. Both the genera and the species are new to Korea.

Introduction

Of plant parasitic nematodes, Trichodorid nematodes are remarkably important to crop plant as well as the Longidorid nematodes as plant root feeders and as vectors of plant virus diseases(Taylor. 1972).

Trichodoridae is the only nematode family in the superfamily Trichodoroidea Siddiqi, 1973 of the order Dorylaimida. Allen (1957) and Esses(1971) discussed the morphological characters and gave keys to the species of the genus *Trichodorus*.

Siddiqi 1973 divided the genus *Trichodorus* into two genera, *Trichodorus sensu stricto*, and *Paratrichodorus*, based on the following characteristics; the cuticle thickness of heat relaxed or fixed specimens, the existence of bursa in male specimens, the position of the three preanal pappillae the numbers of the ventromedian cervical pappillae and the sclertization between vulva and vagina.

So far, 45 species of the genus *Trichodorus* and 18 species of the genus *Paratrichodorus* have been described as valid species (Nematology News Letter published by Society of Nematologists 1974 & 1975).

A special attention on this group of nematode family has been paid by nematologists of the world since many species of the family were proved as vectors of various virus diseases to crop plants.

Trichodorid nematode transmitted viruses are called as NETU viruses, the NEmatode transmitted TUblar viruses or TOBRA virus group, the TOBacco RAttle virus group, and those viruses are Tobacco rattle, Pea early browning viruses(Taylor, 1972)

Though these Trichodorid nematodes are yet to be proved as virus vectors to crop plants in Korea, they possess all potential probabilities in the country as well.

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Therefore, the author wishes that this report would contribute as a basic material for the future researches on nematode-virus interaction to the crop plants.

Materials and Methods

Collected soil samples were washed and nematode specimens obtained by modified Baermanns funnel, sieving and decanting or centrifugation technique. Obtained nematodes killed by hot formalin were preserved in 5% formalin and processed through the Baker's method to mount in pure glycerine.

Glycerine mounted permanent slide specimens were used for identification of species, based on both adult female and male specimens. First step of species identification was to check the overall appearance of nematodes and their main biometrical characters were measured, using camera lucida to figure out the de Man's formulation.

Results

***Trichodorus cedarus* Yokoo, 1964**

Females (10 specimens)

L=0.70(0.63-0.79)mm
a=17.8(15.7-19.5)
b=4.8(4.2-6.4)
V=56.5 (52.8−59.7)%
Onchiostyle=61−4 (59.2−62.6)μ

Males (10 specimens)

L=0.60 (0.57−0.70)mm
a=17.1 (16.7−18.3)
b=4.5 (4.1−5.8)
c=subterminal
T=64.2 (60.8-71.4)%
Onchiostyle=60.3 (59.4-63.0)μ
Spicule=43.4 (41.5-45.6)μ
Gubernaculum=20.3(18.3-21.8)μ

Collected specimes correspond well with the references describing and redescribing the species(Yokoo, 1964; Mamya, 1967) in its general appearance.

The female body is stout and slightly curved ventrally when killed by hot formalin.

Excretory pore is located about the middle of the esophagus, at the level of the base of the narrow part.

Vulva located at 56.5% of the body length in average and is a short transverse slit, surrounded by conspicuous cutinized pieces.

Vagina is surrounded by thick circular muscles.

Gonad paired, opposed, almost symetrical, the anterior one being slightly longer than the posterior one, and both anterior and posterior gonads are reflexed in the rear part of the ovaries. An oval spermatheca with sperm is present in each goned. Anus is subterminal and the a-value could not be figured out.

The male body is cylindrical as in female and posterior end of the body bent ventrally when killed by hot formalin.

Three ventromedian appillae present between the excretory pore and the base of the onchiostyle. Distances between the pappillae are more or less same.

Three ventro-median supplementary pappillae present in the posterior bent part of the body. Spicules are long and slightly curved ventrally. Gubernaculum is about half the length of the spicule with an enlargement in its posterior end.

Caudae alae or bursa absent.

A single male gonad is long, stretched up to the position of one third of the body from the anterior end.

Tail tip roung with nipple-like terminus. Claca almost subterminal.

Though this species has not been proved as a virus vector, it is one of the important nematode pests as a plant root feeder.

This species has been collected from soil around roots of soybean, cabbage, apple and barley.

***Paratichodorus poresus* (Allen, 1957) Siddiqi, 1973**

Female (10 specimens)

L=0.51 (0.40-0.72)mm
a=21.0 (16.3-27.0)
b=4.6 (4.0-5.3)
c=subterminal
V=54.1 (50.5-60.8)%
Onchiostyle=46.0 (40.8-48.2)

Specimens of present collections correspond well with the original description of Allen (1957) in their general body appearance.

Female body cylindrical, tapering anteriorly from

about the middle of esophagus, not curved when killed by hot formalin, Cuticle swellen unusually. Lep region continuous. Basal bulb of the esophagus slightly overlaps the intestine ventrally.

Four ventromedian pores present, two anterior and two posterior to the vulva. Female gonad paired, symetrically opposed each other, with reflexed ovary Spermatheca absent.

Sclerotization of vagina small and inconspicuous. Blunt rounded tail end hemispherical with the prominent, subterminal anus.

Male not found.

This species has been found soil around roots of soybean, garlic, chinese cabbage and maize.

This species was originally described by Allen(1957) as *Trichodorus porosus* and rearranged by Siddigi (1973) as Paratrichodorus porosus. This nematode species transmits American strain of tobacco rattle virus to potato, lettuce and pepper (Ayala & Allen, 1968).

摘　要

全國植物寄生線虫 分布調査期間에 採集된 線虫中에서 Dorylaimida 目, Trichodoroidea 上科의 Trichodoridae 科線虫이 分類同定되었다.

*Trichodorus cedarus*는 콩, 배추, 보리 및 사과등에서 採集되어 分類同定되었으며, *Paratrichodorus porosus*는 콩, 마늘, 배추 및 옥수수 등에서 檢出되었다.

Trichodoroidea 上科의 線虫은 아직까지 우리나라에 記錄되지 않았었다.

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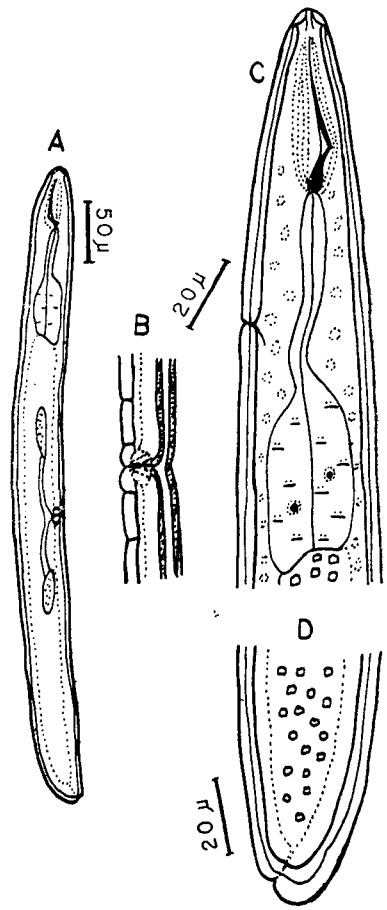

Fig. 2. *P. porosus*: A Female body B. Ventromedian pores near vulva C. & D.Anterior and posterior part of female.

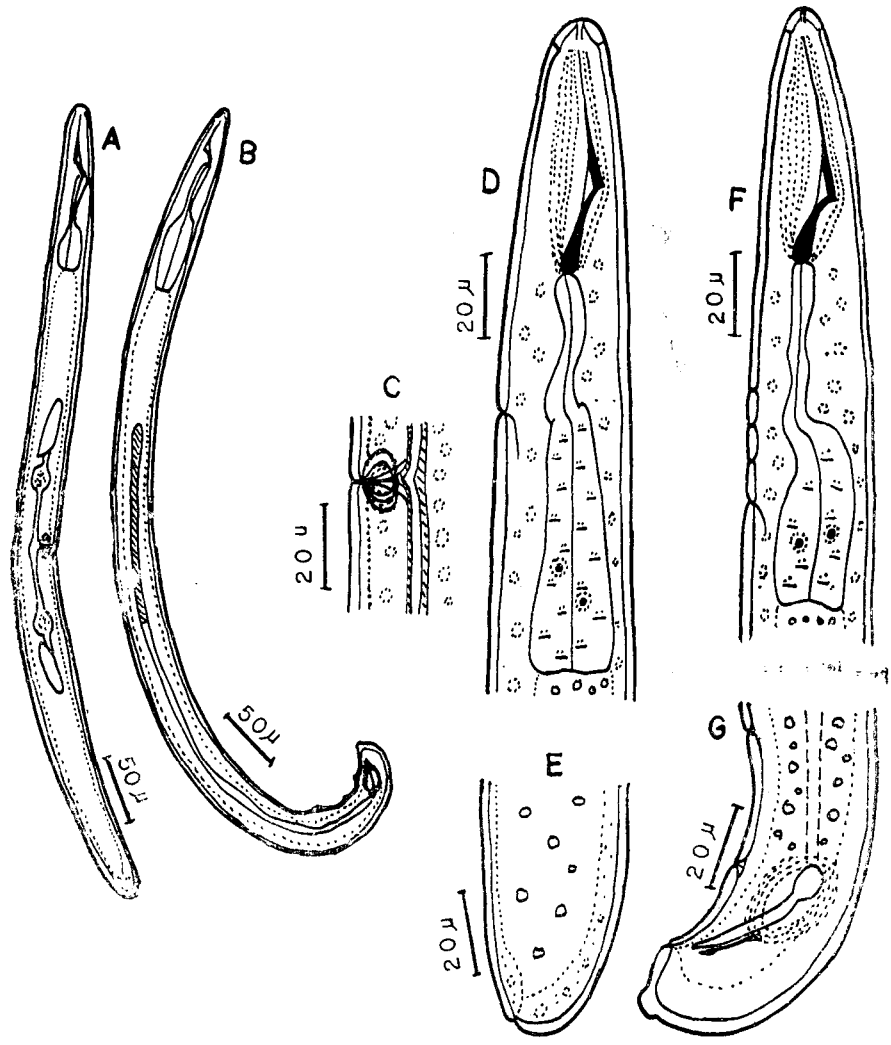

Fig. 1. *T. cedarus*: A. Female body B. Male body C. Vulva and vagina D. & E. Anterior and posterior part of female F. & G. Anterior and posterior part of male.