SOME RECORDS OF KNOWN AND SUSPECTED PLANT-PARASITIC NEMATODES ENCOUNTERED IN CANADA IN 1964

M. O. Tyler[1]

Root-knot Nematodes

Two possible cases of the peanut root-knot nematode, Meloidogyne arenaria (Neal, 1889) Chitwood, 1949 and the northern root-knot nematode, Meloidogyne hapla Chitwood, 1949, were intercepted on hydrangea roots from Alabama, Weigela sp, roots from Michigan, U.S.A., and rose roots from Holland.

The northern root-knot nematode, Meloidogyne hapla Chitwood, 1949 was intercepted on several occasions on rose roots from Texas, Ohio, Pennsylvania, U.S.A., from Holland and Belgium, and also from Rosa multiflora roots from Pennsylvania, U.S.A. It was intercepted on Forsythia sp. roots from New York, Michigan, and Alabama, Weigela sp. roots from New York, and Artemisia dracunculus roots from Vermont, U.S.A. It was recorded from Viburnum sp. roots from St. Hilaire, Quebec, and peony roots from the Toronto, Ontario, area. Two probable cases of this nematode were intercepted on Weigela sp. roots from Alabama, and Paeonia sp. roots from Iowa, U.S.A.

The southern root-knot nematode, Meloidogyne incognita (Kofoid & White, 1919) Chitwood, 1949 was intercepted on Fraxinus sp. and Syringa sp. roots from Alabama, and tomato roots from Georgia, U.S.A. Also two possible cases were intercepted on rose roots from Texas, and tomato roots from Georgia, U.S.A. Meloidogyne sp., possibly M. incognita, mixed with some M. hapla, was found on Weigela sp. roots from Alabama, USA.

Seven interceptions of the Javanese nematode, Meloidogyne javanica (Trsub, 1885) Chitwood, 1949, were made on tomato roots from Georgia, U.S.A. It was found on tomato roots from the Windsor, Ontario area. Two possible cases of this nematode mixed with some M. incognita were also found on tomato roots from Georgia.

Meloidogyne spp. were recorded on tomato roots from Windsor, Ontario, and intercepted on Rosa sp. roots from Arizona, Forsythia sp. roots from New York, and tomato roots from Mississippi and Georgia, U.S.A.

Cyst-forming Nematodes

The oat cyst nematode, Heterodera avenae Wollenweber, 1924, was intercepted from Holland in soil associated with rhododendron, hydrangea, rose, Iams hilli, Iams sp., Picea sp., Thuja sp., conifers, and imported balled stock; from Italy in Laurus sp. and carnation soil; from Germany in Acer sp. and Tilia sp. soil; and in soil from an improperly washed car from England. It was identified from a soil survey of the Toronto, Ontario, area and also there were a few probable cases of this nematode in tho same area. Several possible cases were intercepted in soil about the roots of azalea, Juniperus sp., Malus sp., Euonymus sp., Taxus sp., spirea, Metasequoia sp., Thuja sp., and conifers from Holland.

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[1]Nematology Section, Entomology Research Institute, Research Branch, Canada Department of Agriculture, Ottawa.

The cactus cyst nematode, Heterodera cacti Filipjev & Schuurmans-Stekhoven, 1941, was intercepted in soil from cactus from Austria and also tentatively identified from the same host plant and same area. It was found in a soil survey in the Windsor, Ontario, area and tentatively identified as H. cacti.

Two tentative identifications of the cabbage cyst nematode, Heterodera cruciferae Franklin, 1945, were made from soil about the roots of Ribes sp. from Holland and an improperly washed tractor from Scotland. The fig cyst nematode, Heterodera fici Kirjanova, 1954, was both definitely and tentatively identified from fig tree soil samples from Italy.

The hop cyst nematode, Heterodera humuli Filipjev, 1934, was intercepted from Holland in soil about the roots of rhododendron, hydrangea, Taxus sp., conifers, Cornus sp., Thuja sp., and various house plants; from Italy, associated with aspidistra, grape vine and fig tree, and soil from Germany, Romania and Yugoslavia. It was also found in a soil survey of nurseries in the Niagara Falls, Ontario, area in which the plants originally came from Holland. In addition it was tentatively identified from Holland on azalea, Berberis sp., Betula sp., Cotoneaster sp., Picea pungens, Lonicera sp., Cornus sp., Thuja sp., Juniperus sp., conifers and imported balled stock; from Italy, associated with Pelargonium sp., fern and carnation. It was also found in soil from the U.S.S.R., and in a soil survey in Newfoundland.

The grass cyst nematode, Heterodera punctata Thorne, 1928, was intercepted from Holland in the soil about the roots of rhododendron, hydrangea, Betula alba, quince, Sorbus sp., Berberis sp., Juniperus sp., Ilex sp., Malus sp., Picea sp., Thuja sp., azalea, Acer sp., spirea, conifers, and imported balled stock. It was found associated with ornamental plants from Belgium; aster and heather from England; carnation from Italy; Tilia sp. and herbaceous plants from Germany; improperly washed vehicles from Scotland, Germany and the United Kingdom. It was also found in a soil survey of Newfoundland. Two possible cases of this nematode were recorded on hydrangea and Taxus sp. from Holland.

The golden nematode, Heterodera rostochiensis Wollenweber, 1923, was found in a soil survey from Newfoundland and tentative identifications were made from various plants and soil from the United Kingdom, Germany and Newfoundland.

The sugar-beet nematode, Heterodera schachtii Schmidt, 1871, was found on the roots of red beet at Woodbridge, Ontario; in the soil about the roots of Lonicera sp. from Holland. In addition, it was tentatively identified from the soil of Pelargonium sp., carnation and cactus soil from Portugal.

The clover cyst nematode, Heterodera trifolii Goffart, 1932, was intercepted from the soil of polyantha rose, hydrangea, Quercus sp., Taxus sp., Metasequoia sp., Thuja sp., and Juniperus sp. from Holland; hydrangea from New York, U.S.A.; Pelargonium sp., aspidistra and Saintpaulia sp. from Italy; aster and heather from England; soil from Romania; herbaceous plants and an improperly washed car from Germany. It was also found in a soil survey of Newfoundland, Prince Edward Island, Quebec, Ontario, and British Columbia. Several possible cases of this nematode were found associated with rhododendron, clematis, Pinus strobus, azalea, conifer, and nursery stock from Holland; improperly washed tractors from New York, U.S.A.; and a soil survey of Newfoundland, Prince Edward Island, Quebec, Ontario, and British Columbia.

Cysts identified only as Heterodera sp. were found in the soil from hydrangea, Sorbus sp., azalea, Taxus sp., Thuja sp., Pinus sp., Malus sp., Azalea mollis, Juniperus sp., rhododendron, Acer sp., rose, spirea, Metasequoia sp., and conifer from Holland; ornamentals, ivy, cactus, laurel, and Pelargonium sp. from Italy; Tilia sp. from Germany; soil from England; soil from an improperly washed tractor and car from Czechoslovakia and the United Kingdom. Soil from Newfoundland, Prince Edward Island, Quebec, and British Columbia also contained this nematode.

Root-lesion Nematodes

Pratylenchus crenatus Loof, 1960 was found in soil around the roots of white birch from Oregon, U.S.A.; Sorbus sp. and quince from Holland; Betula sp. and Sorbus sp. from Holland (possibly from Belgium); Malus sp. from Holland, and strawberry from Yarmouth County, Nova Scotia.

Pratylenchus neglectus (Rensch, 1924) Filipjev and Schuurmans-Stekhoven, 1941 was found in the soil associated with gladiolus from Germany, and Acer rubrum from Galt, Ontario.

Pratylenchus penetrans (Cobb, 1919) Filipjev & Schuurmans-Stekhoven, 1941 was found in the soil around the roots of aster, phlox, Heuchera sp., and Thymus sp. from England; Paeonia sp. from Iowa, white birch from Oregon, phlox from Michigan, and Rubus spp. from New York, U.S.A.; Sorbus sp., quince, Picea pungens glauca from Holland; Betula sp. and Sorbus sp. from Holland (possibly from Belgium); a vegetable root and soil, possibly taro from the Azores; strawberry from Yarmouth County, Nova Scotia, and soil from Ontario and Nova Scotia. This species was tentatively identified in aster and in Heuchera sp. soil from England, Pratylenchus pratensis (de Man, 1880) Filipjev, 1936 was found in soil from Holland.

Pratylenchus vulnus Allen & Jensen, 1951 was found on two occasions in the soil about the roots of rose imported from Oregon, U.S.A. In addition, two possible cases of this nematode were found associated with the roots of Rosa sp. from California, U.S.A.; and Cotoneaster acutifolia from Holland.

Pratylenchus spp. were found in the soil from rhododendron and Thuja occidentalis from Holland; Heuchera sp. from England; rose and white birch from Oregon, and Dahlia sp. from Michigan, U.S.A.

Stunt Nematode?

Tylenchorhynchus acutus Allen, 1955 was found in Rosa sp. soil from Texas, U.S.A. Tylenchorhynchus brevidens Allen, 1955 was found associated with aster, phlox, and Heuchera sp. soil from England and Tylenchorhynchus bursifer Loof, 1959 was found in soil from Holland.

Tylenchorhynchus clarus Allen, 1955 was tentatively identified from soil around the roots of rose from California; possibly T. ewingi or T. clarus was also found in rose sail from Arizona, U.S.A. Tylenchorhynchus claytoni Steiner, 1937 was found in soil and rhododendron soil from Holland and in Sorbus aucuparia soil from Holland (possibly from Belgium).

Tylenchorhynchus dubius (Bütschli, 1873) Filipjev, 1936 was found in the soil about Heuchera sp. from England; Malus sp. from Holland; gladiolus from Germany, and succulents from West Germany. This species was tentatively identified from aster and Heuchera sp. soil from England. Tylenchorhynchus maximum Allen, 1955 was found in cedar soil from Burritt's Rapids, Ontario and Tylenchorhynchus pothus Allen, 1955 was found in soil from succulents from West Germany,

Tylenchorhynchus spp. were found in the soil about tho roots of Rosa sp. from Arizona, and Texas; Paeonia sp. from Iowa, U.S.A.; gladiolus bulb soil from Germany and soil from Alabama, U.S.A. and in Pinus sylvatica fastigiata from Holland.

Spiral Nematodes

Helicotylenchus spp. were found in association with soil about the roots of Korean boxwood from Port Burwell, Ontario; Calamagrostis canadensis from Rupert, Quebec, and gladiolus from Germany,

Rotylenchus goodeyi Loof & Oostenbrink, 1958 was found in aster, phlox and Heuchara sp. soil from England. Rotylenchus uniformis (Thorne, 1949) Loof & Oostenbrink, 1958 was found in the soil about the roots of Pinyl sylvatica fastigiata and rhododendron from Holland.

Ring Nematodes

Criconemoides curvatum Raski, 1952 was found in Thymus sp. soil from England and Criconemoides spp, were found in Korean boxwood soil from Port Burwell, Ontario.

Pin Nematodes

Paratylenchus nanus Cobb, 1923 was found in association with gladiolus soil from Germany and Acer rubrum soil from Galt, Ontario. Paratylenchus spp. were found in the soil about the roots of aster and Heuchera sp. from England; rose from Oregon, U.S.A., and rhododendron from Holland.

Other Tylenchids

Aglenchus sp. was found in the soil of Korean boxwood from Port Burwell, Ontario. Boleodorus sp. was found in the soil from succulents from West Germany, Ditylenchus dinsaci (Kühn, 1857) Filipjev, 1936 was found in iris bulbs from Washington, U.S.A. and Ditylenchus sp. was found in the soil of Pinus sylvatica fastigiata from Holland and from soil from Ontario,

Psilenchus hilarulus de Nan, 1921 was found in association with Rosa sp. soil from Arizona, U.S.A. and Psilenchus sp. was found in soil from Alabama, and Paeonia sp. soil from Iowa, U.S.A. A possible identification of Rotylenchulus sp. was made from a few specimens found in the soil about gladiolus bulbs from Germany.

Tylenchus (Cephalenchus) spp. were found associated with azalea soil; from Picea pungens glauca soil from Holland; Betula sp. and Sorbus aucuparia soil from Holland (possibly from Belgium). Tylenchus spp. were found in association with aster, phlox, and Heuchera sp. from England; soil from Alabama, and phlox from Michigan, U.S.A.; rhododendron from Holland; and soil from Ontario.

Aphelenchids

Aphelenchoides parietinus (Bastian, 1865) Steiner, 1932 was tentatively identified from soil from Rubus spp. from New York, U.S.A.; gladiolus from Germany, and soil from Nova Scotia and Ontario. Aphelenchoides bicaudatua (Imamura, 1931) Filipjev & Schuurmans-Stekhoven, 1941 was tentatively identified from Lilium candidurn soil from France.

Aphelenchoides ritzemabosi (Schwartz, 1911) Steiner & Buhrer, 1932 was found in the soil about the *roots* of aster, phlox, and Heuchera sp. from England. A tentative identification was also made of this species in astilbe soil from Holland (possibly from Belgium).

Aphelenchoides spp. were found in association with Euphorbia splendens, Citrus aurantifolia, Sonecio mikanioides, Pilea sp. from Hichigan, U.S.A.; Sorbus sp. and quince from Holland; rose from Belgium; and succulents from West Germany. Aphelenchoides subtenuis was tentatively identified in rose soil from New Jersey, U.S.A.

Aphelenchus avenae Bastian, 1865 was found in soil from aster, phlox, and Hcuchera sp. from England; rose from New Jersey, and sunburst locust from Iowa, U.S.A.; Juniperus sp. from Holland; strawberry from Yarmouth County, Nova Scotia; Korean boxwood from Port Burwell, Ontario; soil from Alabama, USA, and Ontario; alfalfa from British Columbia, and succulents from West Germany. In addition, tentative identifications were made from rose soil and soil from California, U.S.A., and from Ontario.

Aphelenchus spp. were found in rose soil from New Jersey and Arizona, and phlox soil from Michigan, USA; soil from tho London, Ontario, area, and Lilium candidum soil from France.

Seinura spp, were found in the soil associated with Euphorbia splendens, Citrus aurantifolia, Senecio mikanioides, and Pilea sp. from Michigan, U.S.A.; a vegetable root, possibly taro, from the Azores, and Acer rubrum from Galt, Ontario.

Dorylaimids

Trichodorus pachydermus Seinhorst, 1954 was Pound in soil from Holland. Trichodorus spp. were found in rose and Picea pungens glauca soil from Oregon, U.S.A., and Holland, respectively.

Xiphinema americanum Cobb, 1913 was found in soil from Alabama, and white birch soil from Oregon, U.S.A. Xiphinema sp. was found in cedar soil from Burritt's Rapids, Ontario.

ENTOMOLOGY RESEARCH INSTITUTE,
RESEARCH BRANCH, CANADA AGRICULTURE,
OTTAWA, ONTARIO.