

SOME RECORDS OF PLANT-PARASITIC NEMATODES ENCOUNTERED IN CANADA IN 1966¹

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Root-knot nematodes

The northern root-knot nematode, *Meloidogyne hapla* Chitwood, 1949, was intercepted on rose roots from Holland, from several parts of the United States, Texas, California and Tennessee, and from Belgium and France, also on hydrangea and privet from Huntsville, Alabama, on *Spiraea* sp. from Louisiana, on *Spiraea* sp., *Forsythia* sp., *Lonicera* sp. *Viburnum* sp., lilac, honeysuckle, *Deutzia* sp., and *Kolkwitzia* sp. from Tennessee, strawberries from Delaware, *Lycopersicum* sp. from Georgia, on fern root from Portugal, on tomato root from Quebec, and on carrot from Nova Scotia. *Meloidogyne hapla*, and possibly the southern root-knot nematode, *M. incognita* (Kofoid and White, 1919) Chitwood, 1949, were found on privet from Tennessee. *M. incognita* was found on interceptions of golden willow, *Viburnum* sp., and *Weigela* sp. from Tennessee, on hydrangea from Alabama, and on *Lycopersicum* sp. from Georgia. *M. incognita*, and possibly *M. arenaria* (Neal, 1889) Chitwood, 1949, were found on bush honeysuckle from McMinnville, Tennessee; *Meloidogyne* spp. (possibly *M. incognita* and *M. arenaria*) were reported on *Ficus carica* and hydrangea from Alabama, on *Lycopersicum* sp. from Georgia, and on *Spiraea* sp., bush honeysuckle, *Wagela* sp., and *Buddleja* spp. from Tennessee.

The cotton root-knot nematode, *Meloidogyne incognita acrita* Chitwood and Oteifa, 1952, was reported on privet from McMinnville, Tennessee. *M. javanica* (Treub, 1885) Chitwood, 1949 was found in one shipment of *Lycopersicum* sp. from Tifton, Georgia. *Meloidogyne* sp. (possibly *M. hapla*) was found on *Ligustrum amurense* from McMinnville, Tennessee. *Meloidogyne arenaria thamesi* Chitwood, in Chitwood, Specht and Havis, 1952 was found on *Rosa* sp. from Holland.

Cyst-forming nematodes

The oat cyst nematode, *Heterodera avenae* Wollenweber, 1924, was intercepted in soil taken from *Rosa* sp. and from *Chrysanthemum* sp. from Holland, *Acer platanoides* from Belgium, *Cyclamen* sp. from England, and herbaceous plants from Romania.

The grass cyst nematode, *Heterodera punctata* Thorne, 1928, was found in soil associated with herbaceous plants, from *Prunus* sp., *Malus* sp., and *Begonia* sp. from Belgium, also on hyacinth from Germany, and on *Prunus* sp. from Angers, France. It was recorded on flower bulbs from Eng-

land and on *Juglans* sp. from Poland, and in soil taken off cars from several points in Europe.

The golden nematode, *Heterodera rostochiensis* Wollenweber, 1923, was found during a cyst survey in Sidney and Victoria, British Columbia, and also in nursery soil from a car from Newfoundland. It was also discovered on *Dahlia* sp. and in soil from passenger's baggage from Holland, on shamrock from Ireland, on several ornamentals from Scotland, *Zibrina* sp. from England, on potato and hyacinth from Germany, and on greenhouse plants from Italy.

The clover cyst nematode, *Heterodera trifolii* Goffart, 1932, was intercepted on a shipment of gloxinia from Holland. It was also discovered and identified in soil associated with *Mimosa* sp., woody plants, *Pelargonium* sp., *Aspidistra* sp., and several rootstock cuttings from Italy, on *Begonia* sp. from Belgium, in soil from a car, and on *Prunus* sp. from France, on *Amaryllis* sp., herbaceous plants, and in soil from passenger's baggage from Portugal, on *Zibrina* sp., *Cyclamen* sp., and *Primulaceae* from England, on currant, *Juglans* sp., and *Dahlia* sp. from Poland, and on hyacinth from Germany. It was also found in material collected in a cyst survey of the following areas in Canada: St. John's, Newfoundland; Montreal, Quebec; Kentville, Nova Scotia; Toronto, London, and Windsor, Ontario; Sidney, British Columbia.

The cabbage cyst nematode, *Heterodera ~~avenae~~ feriae* Franklin, 1945, was reported on greenhouse plants from Portugal, hydrangea from Italy, and in soil from cuttings from Belgium. The sugar-beet nematode, *Heterodera schachtii* Schmidt, 1871 was reported on lily from Holland, and on *Protea* sp. from South Africa.

Cysts identified only as *Heterodera* spp. were recorded as follows: associated with herbaceous plants from Bermuda and Portugal; on greenhouse plants from the United States and Germany; on *Prunus* sp. and *Malus* sp., and in soil off a car from France; on *Lilium tigrinum* from Japan; on *Oleander* sp., rosemary, *Pelargonium* sp., *Aspidistra* sp., *Begonia* sp., and on several woody plants from Italy; on *Rosa* sp. from Holland; on *Dahlia* sp. from Poland; from a cyst survey in the areas of Montreal, Quebec, and Windsor, Ontario.

Root-lesion nematodes

Pratylenchus crenatus Loof, 1960 was found in soil from around Douglas fir from Duncan, British Columbia, *Ampelopsis veitchii* from Holland, *Acer platanoides* from Belgium, *Pratylenchus penetrans* (Cobb, 1919) Filipjev and Schuurmans-Stekhoven,

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1941 on roots of Malus sp. from England and New Jersey, U. S. A., and on mint plants from Germany. Pratylenchus pratensis (de Man, 1880) Filipjev, 1936 was intercepted on Cactus sp. from Hungary.

Spiral nematodes

Helicotylenchus erythrinae (Zimmermann, 1904) Golden, 1956 was found on root of heather from Europe. H. pseudorobustus (Steiner, 1914) Golden, 1956 and Helicotylenchus sp. were found on root of Gleditsia sp. from Illinois, H. canadensis Waseem, 1961 in soil around the roots of African violet from New Brunswick, and H. platyurus Perry, 1959 and H. digonicus Perry, 1959 in soil taken from around the root of juniper, Rockcliffe Park, Ontario.

Rotylenchus buxophilus Golden, 1956 was found in soil around the roots of boxwood from British Columbia. R. pumilus (Perry, 1959) Sher, 1961 was found in soil associated with celery from Germany. R. goodeyi Loof and Oostenbrink, 1958 was found in Ampelopsis veitchii from Holland. R. fallorobustus Sher, 1965 was intercepted in soil associated with celery from Germany. Rotylenchus spp. were intercepted on house plants from Hungary.

Scutellonema brachyurum (Steiner, 1938) Andrásy, 1958 was found on an interception of shrubs from Denmark.

Pin nematodes

Paratylenchus projectus Jenkins, 1956 was found in soil from the roots of Douglas fir from British Columbia and Fraxinus sp. from Princeton, New Jersey. Hoplolaimus galeatus (Cobb, 1913) Sher, 1961 was intercepted on two shipments of Tilia cordata, Fraxinus sp. and Prunus sp. from Princeton, New Jersey, and also on Tilia cordata from Holland.

Stunt nematodes

Tylenchorhynchus sp. was discovered in soil from a spruce nursery, Lake Simcoe, Ontario. T. claytoni Steiner, 1937 was in soil about the roots of azalea from East Meadow, New York. T. macrurus (T. Goodey, 1932) Filipjev, 1936 was found on Malus sp. from England. T. brevidens Allen, 1955 was intercepted on several house plants from the Ukraine, U. S. S. R.

Criconemoides lobatum Raski, 1952 was found on roots of sweet alyssum from Ottawa, Ontario, and on mint from Germany. Criconemoides sp. was

found on spruce nursery stock from Lake Simcoe, Ontario.

Other tylenchids

Aglenchus sp. (Andrásy, 1954) Meyl, 1961 was found on azalea from New York, and also on spruce nursery stock from Lake Simcoe, Ontario. Tylenchus sp. was identified on Ampelopsis veitchii from Holland, house plants from Hungary, Gleditsia sp. from Illinois, U. S. A., and also on house and garden plants from the Ukraine. Ditylenchus dipsaci (Kühn, 1857) Filipjev, 1936 was found in onion bulbs from Holland. D. destructor Thorne, 1945, the potato-rot nematode, was found in potatoes from Prince Edward Island. Further studies will be carried out on this particular species by Dr. L.Y. Wu, Nematology Section, Entomology Research Institute, Canada Department of Agriculture, Ottawa, to determine existing variations. Ditylenchus sp. was found in iris bulbs from Washington. Psilenchus hilarulus de Man, 1921 was found in association with African violet from Fredericton, New Brunswick.

Aphelenchids

Aphelenchus avenae Bastian, 1865 was found in soil supporting African violet from Fredericton, New Brunswick, and in sweet alyssum from Ottawa, Ontario. Aphelenchus sp. was found in soil supporting a stand of alfalfa, Central Experimental Farm, Ottawa, Ontario. Aphelenchoides sp. was recorded on azalea from New York, Cactus sp. from Hungary, heather from the United Kingdom, and in soil taken from the roots of alfalfa, Central Experimental Farm, Ottawa, Ontario.

Dorylaimids

Some Dorylaimus spp. were recorded from soil supporting nursery stock of spruce from Lake Simcoe, Ontario. Xiphimena americanum Cobb, 1913 was recorded during a cyst survey in Saanichton, British Columbia, on Malus sp. from England, from Princeton, New Jersey, and from Illinois, on Prunus sp. from Princeton, New Jersey, on Tilia cordata from Holland, Gleditsia sp. from Illinois, and on several shrubs from Denmark. Xiphinema diversicaudatum (Micoletzky, 1927) Thorne, 1939 was found around the root of Rosa sp. from the United States.