

SOME RECORDS OF PLANT-PARASITIC NEMATODES
ENCOUNTERED IN CANADA IN 1961

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The records on which the following report is based were obtained from identifications of nematodes by the Nematology Section, Entomology Research Institute in 1961. The material recorded from interceptions of imported plant material or soil was supplied by officers of the Plant Protection Division, Production and Marketing Branch, Canada Department of Agriculture.

Root-knot Nematodes

The northern root-knot nematode, Meloidogyne hapla Chitwood, 1949, was found on intercepted plant material from several areas in the United States, on rose from Tyler, Texas, from Phoenix, Arizona, and from Monroe, Michigan; on Weigelia sp. from North Collins, New York; on Clematis paniculata from Kansas; on strawberry from Indiana and New York; on tomato from Virginia; on Delphinium sp. (blue bird) from Michigan. It was found in interceptions of rose from Belgium, Denmark, and Holland, and on Berberis thunbergii atropurpurea from Holland. In Canada, M. hapla was found on Rosa multiflora from the Downham Nurseries, Strathroy, Ontario, and on Berberis sp. (Sheridan Red) from the Sheridan Nurseries, Toronto, Ontario,

The southern root-knot nematode, Meloidogyne incognita incognita (Kofoid & White, 1919) Chitwood, 1949, was intercepted on importations from the United States; of tomato from Georgia, of Sansevieria sp. from New York, and of rose from Tyler, Texas; on tea soots from Ceylon, and in plant soil which supported ornamentals from Italy. M. incognita incognita was found on Aeschynanthus sp. from Dundas, Ontario, Canada.

The cotton root-knot nematode, Meloidogyne incognita acrita Chitwood, 1949, was found on interceptions of tomato from Georgia, U.S.A. The peanut root-knot nematode, M. arenaria arenaria (Neal, 1890) Chitwood, 1949, was found on interceptions of rose from Texas, U.S.A.; on Berberis thunbergii atropurpurea from Holland, on Hoya cornosa from the British West Indies, and on tomato from a greenhouse at London, Ontario, Canada.

Thames root-knot nematode, Meloidogyne arenaria thamesi Chitwood, 1949, was found on interceptions of rose from Texas, on Clematis paniculata from Kansas, possibly on gardenia from New York, and on Cereus peruvianus from Florida, U. S. A. The Javanese root-knot nematode, M. javanica (Treub, 1885) Chitwood, 1949 was intercepted on importations of tomato from Georgia, and Meloidogyne sp. was found on rose from California, U.S.A.

Cyst-forming Nematodes

The 1960-6 survey for cyst-forming nematodes revealed that the clover cyst nematode, Heterodera trifolii Goffart, 1932, was found in soil which had supported plants of Azalea sp. from Holland, and was prevalent in Canada in

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the Maritime Provinces, Quebec, and Ontario. It was found in soil from the Saint John-Fredericton area in New Brunswick, in Prince Edward Island, and in the Montreal area of Quebec; in the Niagara Falls, Toronto, London and Ottawa areas in Ontario. The clover cyst nematode was found in soil which had supported crops of Ladino clover, oats, and rye in the Vineland Station area in Ontario, and it was found in potato soil from British Columbia,

The sugar-beet nematode, *Heterodera schachtii* A. Schmidt, 1871, was found on sugar beets from the Lethbridge area in Alberta, Canada. The golden nematode, *H. rostochiensis* Wollenweber, 1923, was found on interceptions of soil supporting shamrock plants from Ireland, the oat cyst nematode *H. avenae* Wollenweber, 1924, was found in soil supporting oat and wheat from Woodstock, Ontario, Canada, and the grass cyst nematode, *H. punctata* Thorne, 1928, was found in imported soil from England, and on *Chamaecyparis* sp. from Holland.

Tylenchids

Tylenchorhynchus acti Hopper, 1959 was found in *Coleus* sp. soil from Europe; *T. brevidens* Allen, 1955 was found on interceptions of *Calluna vulgaris* from Scotland; *T. bursifer* Loof, 1959 was found on intercepted shrub and evergreen soil from—Holland; *T. capitatus* Allen, 1955, was found in tobacco soil from the Harrow area, Ontario, Canada; *T. clarus* Allen 1955, was found on rose from California, U.S.A.; *T. claytoni* Steiner, 1937 was found in soil supporting tomato plants from Virginia, U. S. A.

Tylenchorhynchus dubius (Buetschli, 1873) Filipjev, 1936 was found on heather from Scotland, in rose shrub soil from Denmark, in *Fragaria* sp. soil from Latvia, in fruit tree soil from Belgium, in *Cineraria* sp. soil from England, and on *Pelargonium* sp., in *Crassula* sp., and in *Cactus* sp. soil from Europe. *T. macrurus* (Goodey, 1932) Filipjev, 1936 was found in fruit tree soil from Belgium and on interceptions of soil supporting lavender and ornamental shrub plants from various areas in Europe; *T. maximus* Allen 1955 was found in Canada on oats from the Buckingham area, Quebec, on alfalfa and oats from the Finch area in Ontario, and on white birch from the Vienna area, Ontario. *Tylenchorhynchus* sp. was found on carnation from Poland.

Tylenchus orbis Andr assy, 1954 occurred in imported lavender and ornamental shrub soil from Europe; *Tylenchus* sp. (near *T. costatus* de Man, 1921) was found on importations of giant foxglove from Michigan, U.S.A. and *Tylenchus* sp. (near *T. duplexus* (Hagemeyer and Allen, 1952) Andr assy, 1954) was found on carnation imported from Poland,

Stem Nematodes

The potato-rot nematode, *Ditylenchus destructor* Thorne, 1945 occurred on potato from Eglerslie, Prince Edward Island, Canada. This finding does not represent an extension of its known distribution in the province. *Ditylenchus dipsaci* (Kuehn, 1857) Filipjev, 1936 was recorded from British Columbia, Canada, on narcissus from Saanichton, on iris and hyacinth from Victoria and on narcissus from Cobble Hill, Victoria. *Ditylenchus* sp. (now being studied by Dr. L. Y. Wu) was found on hyacinth from Vancouver Island, British Columbia.

Root Lesion Nematodes

Pratylenchus convallariae Seinhorst, 1959 was found on importations of lily-of-the-valley pips from Hamburg, Germany and on Juniperus sp. from Holland; P. minyus Sher & Allen, 1953 was found on carnation from Poland and on white birch from Vienna, Ontario, Canada, Pratylenchus penetrans (Cobb, 1917) Filipjev & Schuurmans Stekhoven, 1914 was found on interceptions of chrysanthemum from Hungary, on rose shrubs from Denmark, in shrub and evergreen soil from Holland, in fruit tree soil from Belgium, in Ribes sp. soil from Holland, on Calluna vulgaris from Scotland. It was found in Canada in potato soil from British Columbia; on Lasalle red clover from the Central Experimental Farm, Ottawa, Ontario, and on strawberry from Hatzic, British Columbia.

Pratylenchus pratensis (de Man, 1880) Filipjev, 1936 was found in soil supporting ornamental plants from Italy, in fruit tree soil from Belgium, in soil supporting Fragaria sp. from Latvia, and on rose from Denmark, and in soil supporting potatoes from British Columbia, Canada,

Pratylenchus, sp. (near P. goodeyi Sher & Allen, 1953) occurred in evergreen soil from Holland; Pratylenchus sp. (near P. irregularis Loof, 1960) was found in imported soil supporting Picea pungens from Holland; Pratylenchus sp. (near P. vulnus Allen and Jensen, 1951) was found in imported evergreen soil from Holland and, Pratylenchus spp. were found on onion from the Okanagan Valley in British Columbia, on spruce seedlings from east of Ottawa, Ontario and in imported Ribes sp. from Holland.

Hoplolaimids

Helicotylenchus erythrinae (Zimmermann, 1904) Golden, 1956 was intercepted on Calluna vulgaris from Scotland, in soil supporting Cineraria sp. from England, and in shrub and evergreen soil from Holland,

Helicotylenchus spp. were found on importations of chrysanthemum from Hungary, on tomato from Virginia, U. S.A., on Hoya carnosa from the British West Indies, in carnation soil from Poland, in ornamental plant soil from Italy, in grass and soil from West Germany, and in Cineraria sp. soil from England. Species were recorded from Ontario, Canada, on oats from Finch, Aeschynanthus sp. from Dundas, spruce seedlings from east of Ottawa, grass sod from Richmond, and on alsike clover from Morewood.

Rotylenchus goodeyi Loof & Qostenbrink 1958 was found in shrub and evergreen soil from Holland, and in cactus soil from Europe. It was recorded from Canada on blue violet from North Gower, Ontario, and on wild strawberry and grass from the La Fleche caverns, Quebec.

Rotylenchus uniformis (Thorne, 1949) Loof & Qostenbrink 1958 was found on interceptions of Picea albertiana canica, Juniperus squamata, and Juniperus sp. from Holland, in shrub and evergreen soil from Holland, in Fragaria sp. soil from Latvia, and on carnation from Poland.

Scutellonema brachyurum (Steiner, 1938) Andr assy, 1958 occurred in imported begonia and gardenia soil from Europe.

Criconematids

Criconemoides lobatum Raski, 1952 was recorded from grass in the west Ottawa and Richmond areas of Ontario. and Criconemoides sp. (near C. informe (Micoletsky, 1921) Taylor, 1936) was intercepted in soil supporting Fragaria sp. from Latvia; Criconemoides sp. (possibly a new species) was found in ornamental soil from Italy.

Paratylenchus spp.

Paratylenchus amblycephalus Reuver, 1959 was found in Ribes sp. soil from Holland. A pin nematode Paratylenchus sp. (near P. microdorus Andrassy, 1959) was found in grass soil from West Germany. A new species of Paratylenchus which is being studied by Dr. L. Y. Wu, Nematology Section, Entomology Research Institute, Ottawa, Canada, was found on intercepted Calluna vulgaris from Scotland.

Paratylenchus sp. (near P. nanus Cobb, 1923) was found in intercepted fruit tree soil from Belgium, in greenhouse plant soil from Europe, in evergreen soil from Holland, and on red clover from the Central Experimental Farm, Ottawa, Ontario, Canada.

Aphelenchids

Aphelenchoides parietinus (Bastian, 1865) Steiner, 1932 was recorded in importations of rape and watercress soil from England, Aphelenchoides sp. (possibly a new species) now being studied by Dr. K. C. Sanwal, Nematology Section, Ottawa) was found on importations of chrysanthemum from Hungary, on lily-of-the-valley pips from Hamburg, Germany, on Picea pungens, and evergreen soil from Holland, on Juniperus sp. from Holland, and on Cumberland raspberry from New Carlisle, Ohio, U.S.A.

Aphelenchus avenae Bastian, 1865 occurred on importations of dahlia tubers from Holland, on Buxus sp. and Ligustrum sp. from Hong Kong, in Ribes sp. soil from Holland, and from pine near La Fleche caverns in Quebec, Canada. It was found in philodendron, Calla sp., and Pelargonium sp. from Europe, Aphelenchus sp. occurred on strawberry from New Carlisle, Ohio, U.S.A.

Seinura sp. was found on importations of carnation, delphinium and giant foxglove from Michigan, U.S.A. and in evergreen soil from Holland.

Dorylamids

Trichodorus christiei Allen, 1957 was found in imported tomato soil from Virginia, U.S.A. T. pachydermus Seinhorst, 1954 was found in evergreen soil imported from—Holland. T. primitivus (de Man, -1884) Micoletzky, 1922 occurred in imported Ribes sp. soil from Holland and in fruit tree soil from Belgium.

Xiphinema diversicaudatum (Micoletzky, 1927) Thorne, 1939 was found around the soil supporting roses in a commercial greenhouse at Richmond Hill, Ontario,