SOME RECORDS OF KNOWN AND SUSPECTED PLANT-PARASITIC NEMATODES ENCOUNTERED IN CANADA IN 1965

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Root-knot nematodes

The peanut root-knot nematode, Meloidopyne arenaria (Neal, 1889) Chitwood, 1949, was intercepted on rose roots from Texas. A probable case of this nematode possibly mixed with the southern root-knot nematode, M. incognita (Kofoid & White, 1919) Chitwood, 1949, was reported on tomato from Georgia.

The northern root-knot nematode, Meloidogyne hapla Chitwood, 1949, was intercepted on several occasions on rose roots from the U.S.A., from Texas, Pennsylvania, and Ohio, and from Belgium, Holland and France. It was also intercepted on Lonicera sp., Ligustrum sp., and Vinca minor from Tennessee, on Spiraea sp. and Weigela sp. from New York, on Lycopersicon sp. from Georgia, Berberis thunbergii atropurpurea from Missouri, strawberry from Indiana, Clematis jackmanii superba, and phlox from Holland. It was reported on Impatiens sp. roots from Calgary, Alberta, and cyclamen from Côte St. Luc, Quebec. There was one possible case of M. hapla on Berberis sp., 'Sheridan Red' from Islington, Ontario, and two cases of M. hapla, possibly mixed with M. incognita on Rosa sp. from Tyler, Texas, and Syringa sp. from Iowa.

The southern root-knot nematode, Meloidogyne incognita (Kofoid & White, 1919) Chitwood, 1949, was found on interceptions of Hydrangea sp., Forsythia sp., and Weigela sp. from Alabama, Catalpa bungei from Tennessee, and tomato roots from Georgia and Mississippi. Three possible cases of this nematode were found on importations of shrubs from Tennessee, caladium from Japan and tomato roots from Georgia. One case of Meloidogyne sp., possibly a mixture of M. incognita and M. arenaria was reported on tomato roots from Georgia.

There was one possible case of the cotton root-knot nematode, Meloidogyne incognita acrita Chitwood, 1949, reported on Rosa sp. from Tyler, Texas. The Javanese root-knot nematode, Meloidogyne javanica (Treub, 1885) Chitwood, 1949, was found on 12 shipments of tomatoes from Georgia. There were also three reports of M. javanica possibly mixed with M. incognita intercepted on tomato plants from Georgia. Meloidopyne spp. were recorded on rose roots from Holland, Ligustrum sp. from Tennessee, and tomato plants from Georgia.

Cyst-forming nematodes

The oat-cyst nematode, Heterodera avenae Wollenweber, 1924, was intercepted from Holland in soil associated with Ribes sp., azalea, Hydrangea sp., Berberis thunbergii, Juniperus sinensis glauca, fruit understock, Malus sp. rootstocks, Viburnum sp., Chamaecyparis sp., Prunus cistena, Prunus sp., Taxus cuspidata hillii, Thuja sp., evergreens, Rhododendron sp., Ilex sp., Japanese maple, Rosa multiflora, Ligustrum amurense, nursery stock, Juniperus pfitzeriana, Taxus cuspidata, Juniperus virginiana glauca, Taxus sp., magnolia, Fagus sp., Vinca minor, Picea sp., Juniperus sp., cherry, Cotoneaster sp., Buxus sp., conifer, and several ornamental plants. In addition it was found on seed potatoes and Mahonia sp. from Germany, primrose from England, oleander, Ficus sp. from Italy, and soil from France. It was also tentatively identified from Holland on Cornus sp., Rhododendron sp., Clematis sp., Thuja sp., apple, Juniperus sabina, rose, magnolia, blue spruce, Betula laciniata, Thuja linus, Juniperus sp., and various trees and ornamentals; from an improperly washed car from Belgium, and Lonicera sp. from Tennessee.

There were three probable cases of cactus-cyst nematode, Heterodera cacti Filipjev & Schuurmans-Stekhoven, 1941, in soil from France, fern from Portugal and calamondin from New York. Two possible cases of cabbage-cyst nematode, Heterodera cruciferae Franklin, 1945, were recorded from Holland on Calluna sp. and ornamental plants. The fig-cyst nematode, Heterodera fici Kirjanova, 1954, was intercepted on Ficus sp. from Norway, and tentatively identified from Rhododendron sp. from Holland. There was one possible case of the pea-cyst nematode, H. goettingiana Liebscher, 1892, on ornamentals from Portugal.

The hop-cyst nematode, Heterodera humuli Filipjev, 1934, was intercepted from Holland in soil associated with Hydrangea sp., Deutzia sp., Ampelopsis sp., Cornus sp., and Hydrangea sp., Thuja sp., Malus sp., Juniperus sp., Pyracantha kasan, Kerria sp., Chaenomeles sp., Picea sp., Betula laciniata, mugho pine and several ornamental plants. It was recorded from Italy from shrubs, cactus, grapevine cuttings, Prunus sp., Ulmus sp., Vitis sp., potted hyacinth, and soil from one unidentified host. It was also found in soil from an improperly washed truck from England, Crassulaceae from the United Kingdom, tulips from Hungary and hop roots from Sardis, British Columbia.

In addition it was tentatively identified from Holland on Hydrangea sp., Picea sp., barberry, Dicentra sp., fruit understock, Malus sp., Prunus sp., Viburnum sp., Clematis sp., Thuja sp., Taxus sp., Acer palmatum atropurpureum, Austrian pine, Juniperus sp., Pinus sp., and various ornamentals. It was also tentatively identified from Italy on Crassulaceae, heather, herbaceous plants, ornamental plants, Ficus sp., and grape cuttings; from France in soil; from Poland on asparagus; from Yugoslavia on carnation; from Argentina on woody plants.

The grass-cyst nematode, Heterodera punctata Thorne, 1928, was found in soil from Holland associated with ornamental plants, Hydrangea sp., azalea, Rhododendron sp., apple, Japanese maple, Picea pungens glauca, Viburnum sp., fruit understock, Thuja sp., evergreens, Ligustrum sp., Prunus sp., Acer sp., Ilex sp., Picea kosteri, Taxus sp., Juniperus

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spp., shrubs, Calluna sp., Ligustrum amurense, Lonicera sp., Populus sp., Pyracantha kasan, Buxus sp., Juniperus sabina, nursery stock, Taxus cuspidata, Juniperus canaertii, Berberis sp., Taxus sp., Picea sp., magnolia, Ligustrum sp., Chaenomeles lagenaria rubra, prune and pear, shrubs, phlox, Betula sp., Picea glauca conica, mugho pine, Juniperus sp., blue spruce, Cotoneaster sp., Taxus cuspidata nana, Thuja sp., and Juniperus sp.; from England associated with fruit understock and primrose; from Italy in soil from Euphorbia sp. It was also recorded in soil from Port-aux-Basques, Newfoundland; through a cyst survey in Montreal; a first report of Heterodera punctata in Saint John, New Brunswick, found through a nursery survey. There were four tentative identifications of H. punctata, all from Holland in soil associated with Thuja sp., Dicentra sp., various ornamentals and fruit understock.

The golden nematode, H. rostochiensis Wollenweber, 1923, was found in a soil survey in Newfoundland. It was intercepted in soil associated with Malus sp. understock from Holland, carnation, Hydrangea sp., and various other plants from England, potato from France, Betula sp. and Rosa sp. from Germany, perennial roots from the United Kingdom, and, for the first time, from potato roots on Vancouver Island, British Columbia. There was one tentative identification on greenhouse plants from England.

The sugar-beet nematode, Heterodera schachtii Schmidt, 1871, was found on Ribes sp. from Holland and tentatively identified from Holland on Philadelphus coronarius aureus and azalea.

The clover-cyst nematode, Heterodera trifolii Goffart, 1932, was intercepted from Holland on shipments of Abies s ~ . Acer sp., apple, azalea, barberry, begonia, Buxus sp., Calluna s ~ . Chamaecyparis sp., evergreens, fruit understock, Hydrangea sp., Juniperus sabina, Juniperus sp., Taxus sp., Juniperus virginiana, Lilium sp., Malus sp., nursery stock, ornamentals, Picea sp., Populus sp., privet, Prunus sp., Pyracantha kasan, Rhododendron sp., shrub, Sorbus sp., strawberry, Taxus sp., Thuja sp., Philodendron sp., Vinca minor, and Weigela sp.; from Italy on fern and hardwood and grape cuttings; from an improperly washed truck and greenhouse plants from England; from Germany on Tilia sp., Betula sp., and soil from Belgium; in heather plants embedded in potatoes from Scotland; in soil from Pilea microphylla from Michigan, U. S. A. Here in Canada it was found in soil associated with grass from Constance Bay, Ontario, Dracaena indivisa from Montreal, Quebec, soil from Saint John, New Brunswick, raspberry from Agassiz, British Columbia, and cyst surveys from Prince Edward Island, London, Ontario, and Montreal, Quebec.

There were several tentative identifications reported from Holland on Euonymous sp., Hydrangea sp., ornamentals, Juniperus sp., Buxus sp., Taxus sp., Betula sp., Picea sp., Rhododendron sp., Picea alba conica. It was also recorded tentatively from carnation from England; Iridaceae from Italy and a cyst survey from Montreal.

The knotweed-cyst nematode, Heterodera weissi Steiner, 1949, was reported in a cyst survey from Montreal and tentatively identified from soil from tobacco from St. Catharines, Ontario.

Cysts identified only as Heterodera sp. were reported from Holland on Rhododendron sp., Hydrangea sp., various trees and ornamental plants, azalea, shrub, Ribes sp., Acer palmatum corallium, Leucothoë catesbaei, fruit understock, Viburnum sp., Picea pungens glauca and kosteriana, Juniperus sinensis keteleeri, Malus sp., Cydonia sp., Chamaecyparis filifera, Taxus sp., Juniperus sp., Juniperus virginiana canaerti and glauca, Japanese maple, evergreens, Pyrus sp., Juniperus sinensis pfitzeriana, Thuja sp., Picea sp., Sorbus sp., Lonicera sp., nursery stock, Pinus sp., Calluna sp., Vinca minor, Chaenomeles lagenaria rubra, arborvitae, Cotoneaster sp., cherry, Picea glauca conica, Juniperus sabina, Thuja compacta, Taxus media hicksii, Mahonia aquifolium; from Italy on fern, oleander, heather, lily; from Scotland in heather plants embedded inpotatoes; from Tunisia on Thuja sp.; from Portugal on fern; from France in rose soil; from Ireland in shamrock soil; from two improperly washed cars from the United Kingdom and Germany; from Germany on house plants; from England on heather plants; from cyst surveys from Prince Edward Island and London, Ontario.

Root- lesion nematodes

Pratylenchus crenatus Loof, 1960 was found in soil about the roots of apple trees from Kentville, Nova Scotia, Picea sp. from Belgium, and Prunus sp. and Pinus nigra from Holland. Pratylenchus penetrans (Cobb, 1919) Filipjev and Schuurmans-Stekhoven, 1941 was found in soil around the roots of lily plants from Lorne Park, Ontario; strawberry and apple from Kentville, Nova Scotia. Pratylenchus pratensis (de Man, 1880) Filipjev, 1936 was found in strawberry soil from Kentville, Nova Scotia. Pratylenchus sp. was found in apple orchard soil from Kentville.

Stunt nematodes

Tylenchorhynchus clarus Allen, 1955 was found on Rosa sp. from California. T. claytoni Steiner, 1937 was found on two occasions on Rhododendron sp. from Holland. T. dubius (Bütschli, 1873) Filipjev, 1936 was found in soil from Picea sp. from Belgium. T. latus Allen, 1955 was tentatively identified from Rosa sp. soil from California. T. maximus Allen, 1955 was found in apple orchard soil from Kentville.

Ring nematodes

Criconemoides lobatum Raski, 1952 was found in apple orchard soil from Kentville. Criconemoides sp. was found from Holland on Pinus nigra.

Pin nematodes

Paratylenchus brevihastus Wu, 1962 was found

in apple orchard soil from Kentville, Nova Scotia. Paratylenchus nanus Cobb, 1923 was found in apple orchard soil from Kentville and in soil from Hydrangea sp. from Holland.

Other tylenchids

Aglenchus sp. (Andrassy, 1954) Meyl, 1961 was found in apple orchard soil from Kentville, Nova Scotia and Hydrangea sp. from Holland. An unidentified species of Tylenchus (Cephalenchus) was recorded from Holland on Rhododendron sp. and %. drangea sp. Ditylenchus sp. was found in soil about the roots of rose from Holland.

Tetylenchus sp. was intercepted from Holland in soil associated with Rhododendron sp., Hydrangea sp., Prunus sp., and Pinus nigra. Unidentified species of the genus Tylenchus were reported from Holland on Hydrangea sp., Philadelphus sp. and rose; from California on rose; from Kentville, Nova Scotia in apple orchard soil.

Aphelenchids

Aphelenchoides parietinus (Bastian, 1865) Steiner, 1932 was identified from Ottawa, Ontario, in soil associated with zinnia. Aphelenchoides saprophilus Franklin, 1957 was found in daffodil bulbs from Ottawa, Ontario. Aphelenchoides spp. were recorded in soil associated with Hydrangea sp. and Philadelphus sp. from Holland, lily plants from Lorne Park, Ontario, and apple and strawberry from Kentville, Nova Scotia.

Aphelenchus avenae Bastian, 1865 was identified from Kentville, Nova Scotia on strawberry and in apple orchard soil. There was one tentative identification of A. avenae on Philadelphus sp. from Holland. Aphelenchus spp. were reported from soil associated with shrubs from Tennessee, and Agrostis sp. from California.

Paraphelenchus sp. was found in apple orchard soil from Kentville, Nova Scotia. Seinura sp. was found in soil from chrysanthemum from Port Burwell, Ontario.

Dorylaimids

Longidorus elongatus (de Man, 1876) Thorne & Swanger, 1936 was found associated with sweet corn in Essex and Kent Counties in Ontario, Trichodorus christiei Allen, 1957 was reported on Eragrostis sp. from California. Trichodorus primitivus (de Man, 1880) Micoletzky, 1922, as well as nematodes identified only as Trichodorus sp., were intercepted from Holland on Rhododendron sp. Xiphinema americanum Cobb, 1913 was found from Texas on Rosa sp. from Tennessee on shrubs, and from Kentville, Nova Scotia, in apple orchard soil.