

## VI. DISEASES OF HERBACEOUS ORNAMENTAL PLANTS

### ALTHAEA - Hollyhock

Rust (Puccinia malvacearum) was prevalent throughout the Okanagan Valley, B.C. (G. E. Woolliams).

### ANTIRRHINUM - Snapdragon

Downy Mildew (Peronospora antirrhini). Affected specimens were submitted from Lambeth, near London, Ont. Plants were stunted, new growth was bunched and the leaves were rolled downwards at the edge and had a dull green color. The fungus was sporulating on the underside of the leaves (W.G. Kemp).

Stem Rot (Rhizoctonia solani) was extensive in 2 ground beds at Virgil, Ont. In many localized areas in the beds, all the plants were dead. In other areas infection was spotty. At Ridgeville, Ont., 67/1500 young plants were attacked in a greenhouse bench. Affected plants were wrinkled and shrivelled (W. G. K.).

### ARABIS - Rock Cress

Downy Mildew (Peronospora parasitica) occurred on A. albida in a rockery at Vancouver, B.C. This disease was erroneously reported to the Survey in 1958 as white rust (Albugo candida) (H. N. W. Toms).

### ASTER

Rust (Coleosporium asterum). Light infections were observed on 30% of the plants in a garden at St. Jean, Que. (L. Cinq-Mars).

Powdery Mildew (Erysiphe cichoracearum) was sev. on A. novi-belgii in the Montreal Botanical Garden (D. Leblond).

### BEGONIA

Crown Gall (Agrobacterium tumefaciens). A severely infected tuber of B. tuberhybrida was received from Winnipeg, Man. (W.A.F. Hagborg).

Powdery Mildew (Erysiphe cichoracearum). Infected specimens were received from Champigny, Quebec Co. and Levis, Levis Co., Que. (D. Leblond).

Leaf Spot (Xanthomonas begoniae) affected a single tuberous begonia at St. Catharines, Ont. Many translucent spots, some with necrotic centers, formed on the foliage (W.G. Kernp). An infected specimen was received from St. David, Levis Co., Que. (D. L.).

### CALLISTEPHUS - China Aster

Fusarium Wilt (F. oxysporum f. callistephi) affected China Asters at Ste. Foy, Que. (D. Leblond). Wilt completely destroyed a planting at Bear River, Digby Co., N.S. (K. A. Harrison).

Aster Yellows (virus) infection was extremely light at Kentville, N.S. In most seasons this disease makes the growing of China Asters practically impossible (K. A. H.). Heavy infections were observed at Charlottetown and Southport, P.E.I. (J.E. Campbell).

## CHRYSANTHEMUM

Powdery Mildew (Erysiphe cichoracearum) was extremely heavy on the varieties Yellow Shasta, White Shasta, Yellow Mefo and White Shoemith in a poorly ventilated range in Hamilton, Ont. (W.G. Kemp).

Rust (Puccinia chrysanthemi). A light infection occurred on leaves and stems of C. morifolium at Victoria, B.C. (W.R. Orchard).

Leaf Spot (Septoria chrysanthemi) was light on C. maximum at Brentwood, B.C. (W. R. O.). The lower leaves of the variety Indianapolis White were badly spotted at Virgil, Ont. Little damage resulted. At Fort Erie, Ont. the variety Yellow Shasta bore mod. -sev. infections (W. G. K.). Infection was moderate in flower beds at Ste. Anne de la Pocatiere, Que. (D. Leblond).

Stunt (virus), At Hamilton, Ont., 147/200 Yellow Shoemith plants were affected. The plants were short and blooms were small. No symptoms were evident on the foliage (W. G. K.).

## COLEUS

Cutting Rot (Rhizoctonia solani) destroyed the new roots of plants in a propagating bed at Welland, Ont. The sand, used as a propagating medium, had not been sterilized (W. G. Kemp).

## CONVALLARIA - Lily-of-the-Valley

Stem Rot (Botrytis sp.). Infection was moderate and damage relatively severe at New Westminster, B.C. (W.R. Orchard). The identity of the Botrytis attacking Convallaria is not clear. Weiss and O'Brien, Index of Plant Diseases in the United States, Part PV, p 684, 1925 list B. paeoniae Oud, as the cause of blight and stem rot, but raise the question that the fungus reported might not be B. cinerea Pers, f. convallariae Kléb. This disease has not been previously reported to the Survey (D. W. Creelman).

## CYCLAMEN

Gray Mold Rot (Botrytis cinerea) affected about 10% of the plants in a commercial greenhouse at Summerland, B.C. It caused a wilt of petioles and flower stalks and a rot of the corms (G.E. Woolliams).

## DIANTHUS - Carnation, Sweet William

Blight (Alternaria dianthicola) severely affected leaves, stems and flowers of D. barbatus in a home garden at Ottawa, Ont. Affected plants were killed (D. W. Creelman).

Bud and Flower Blight (Botrytis cinerea) occurred on buds and blooms of the carnation varieties Northland and Apollo at Fenwick, Ont. Flower blight was severe (W. G. Kemp).

Wilt (Fusarium oxysporum f. dianthi) caused considerable damage in a greenhouse in the Fraser Valley, B.C. (W.R. Orchard). Severe infections also occurred in greenhouses at Neuville, Portneuf Co., Que. (D. Leblond).

Rust (Uromyces dianthi). Moderate infections occurred on many carnation plants in a range at Fort Erie, and was extremely severe in a greenhouse at Fenwick, Ont. (W.G.K.).

? Boron Deficiency. A condition, tentatively diagnosed as boron deficiency was encountered at Crystal Beach, Welland and Fenwick, Ont. Flowers on many plants aborted and abnormal breaks occurred on the stems (W. G. K.).

#### ECHINOPS - Globe Thistle

Crown Gall (Agrobacterium tumefaciens) was observed in a nursery at Bunbury, P. E. I., (J. E. Campbell, D. B. Robinson).

#### EUPHORBIA - Crown-of-Thorns, Poinsettia

? Crown Gall (Agrobacterium tumefaciens). Several galls of the crown gall type were present on a stem of E. splendans, Crown-of-Thorns, at Winnipeg, Man. (W. A. F. Hagborg),

Stern and Root Rot (Pythium sp.). A single poinsettia plant (E. pulcherrima) was affected at St. Catharines, Ont. Soft, brown lesions developed on the stem at soil level and roots were brown and extensively rotted. Isolations from stem and root tissues yielded a Pythium sp. (W. G. Kemp)

#### FICUS - Rubber Plant

Anthracnose - (Gloeosporium ? cingulatum). Infected specimens were received from Quebec City and from Ste. Marie, Beauce Co., Que. (D. Leblond).

#### GLADIOLUS

Fusarium Yellows (F. oxysporum f. gladioli) was slight, though general, in the Winnipeg, Man. district (B. Peterson).

Corm Rot (Penicillium gladioli) occurred on corms at Kamloops, B. C. (G. E. Woolliams).

scab (Pseudomonas marginata). A very severe infection developed at Kentville, N. S. in 3 rows of the variety Snow Princess. Small corms had been planted in soil which had not grown gladioli for at least 10 years (K. A. Harrison),

Dry Rot (Stromatinia gladioli). A 15% infection was seen in a home garden at Kentville, N. S. (K. A. H.). Trace infections only were recorded in a large commercial planting at Rockland, Kings Co., N. S. This planting, in the past, has suffered at times from severe infections (J. F. Hockey),

Aster Yellows {virus} infection was trace in 2 plantings at Fort Garry, Man. (B. P.).

#### IRIS

Leaf Spot (Didymellina macrospora) caused slight damage in a home garden in Ottawa, Ont. (D. W. Creelman).

## LILIUM - Lily

Leaf Spot (Cercospora inconspicua). Slight infections were observed on L. canadense at Woburn, Frontenac Co., Que. (D. Leblond). The only previous report to the Survey, of this disease, is one from Dropmore, Man. (C.P.D.S. Ann. Rep't, 25: 115. 1946 [1947]. In this report D.B.O. Savile discusses the nomenclature of Cercospora spp. on Lilium (D.W. Creelman).

Mosaic (virus) affected 60% of the plants of Regal Lily in a garden at Kentville, N.S. Many plants failed to grow, apparently as a result of 1958 infection (K.A. Harrison).

## LIMONIUM - Sea-Lavender

Rust (Uromyces limonii), Light infections were seen on L. latifolium in a roakery at Brentwood on Vancouver Island, B.C. (W.R. Orchard).

## MATTHIOLA - Stocks

Stem Rot (Rhizoctonia solani) affected 25/1000 plants at Welland, Ont. Stem lesions developed at the soil surface (W.G. Kemp).

## MYOSOTIS - Forget - Me - Not

Powdery Mildew (Oidium sp.). Plantings were severely attacked and ruined in Quebec City in June and at Deschambault, Portneuf Co, in July. Cleistothecia were not found (D. Leblond). There appears to be no published records of a powdery mildew occurring on Myosotis in North America. Weiss, (Index of Plant Diseases in the United States. Part I. 1950), lists Erysiphe cichoracearum as occurring on other genera in the Boraginaceae, with the notation that the powdery mildew on Cynoglossum and Lappula should possibly be assigned to Erysiphe horridula (Lév.) Wallr.

In Oudemans Enumerato Systematica Fungorum Vol. IV the following powdery mildew species are listed on Myosotis: Oidium erysiphoides Fr., Oidium asperifolii Erikss., Erysiphe horridula (Lév.) Wallr., Erysiphe lamprocarpa Lév. and Oidium sp., stat. cond. of E. cichoracearum (D. W. Creelman),

## NARCISSUS

Smoulder (Botrytis narcissicola). Trace infections were observed on several varieties on the Experimental Farm, Saanichton, B.C. (W.R. Orchard).

Leaf Scorch (Stagonospora curtisii) caused slight damage on the variety Maximus at Saanichton, B.C. Elongate lesions containing numerous pycnidia appeared, mostly towards the tips of leaves. Conidia were viable early in April (W.R.O.).

## PAEONIA - Peony

Blight (Botrytis paeoniae) caused sev. damage in May at Saanichton, B.C. (W.R. Orchard). Scattered, light infections were observed in plantings in the Winnipeg, Man, district (B. Peterson). Blight was observed in a home garden St. Catharines, Ont. (W.G. Kemp). The disease was moderate in intensity at Ste. Foy, and diseased specimens were received from Levis, Que. (D. Leblond). It was very prevalent in Kings Co., N.S. (J.F. Hockey).

Leaf Blotch (Cladosporium paeoniae). Moderate damage was observed at Brentwood, B.C. Some plants showed a high rate of infection (W.R.O.).

#### PELARGONIUM - Geranium

Leaf Spot (Botrytis cinerea) was sev. on 35 stock plants of the variety Salmon Irene at Welland, Ont. B. cinerea was fruiting on the affected leaf areas. It was also sev. on newly rooted cuttings of Radio Red at Fenwick, Ont. (W.G. Kemp).

Basal Stem Rot (Botrytis cinerea) caused up to 50% loss of untreated cuttings in commercial greenhouses at Summerland, B.C. There was evidence of differences in varietal susceptibility to this disease (G.E. Woolliams).

Root Knot Nematode (Meloidogyne sp.). All plants examined in a greenhouse at Fonthill, Ont. exhibited small root galls (W.G.K.).

Stem Rot (Xanthomonas pelargonii) was found affecting stock plants of the varieties Royal Fiat at Fonthill and Irene at Welland, Ont. (W.G. Kemp). A severely infected specimen was submitted from Bridgewater, N.S. Leaf spot symptoms were also present (J.F. Hockey).

Ring Spot (? virus). Four plants from Shelburne, Ont., submitted to the St. Catharines laboratory for diagnosis showed very distinctive ring spot patterns on the foliage. The plants were kept under observation for a 6-month period. No ring spot symptoms developed on the new foliage (W. G. K.).

#### PETUNIA

Powdery Mildew (?Erysiphe cichoracearum), A white hybrid variety was severely infected at St. Catharines, Ont. (W.G. Kemp).

Aster Yellows (virus). Slight infections were seen on occasional plants in the Winnipeg, Man. area (W. L. Gordon).

#### PHLOX

Powdery Mildew (Erysiphe cichoracearum) was widespread in home gardens in Ottawa, Ont. (D.W. Creelman). Many specimens were received for diagnosis from widely separated areas in Que. (D. Leblond).

Leaf Spot (Septoria divaricata) was severe on several varieties of phlox at Keating, B.C. (W.R. Orchard).

#### SALVIA

Wilt (Fusarium oxysporum). Infected specimens were received from Thetford Mines, Que. (D. Leblond).

#### SOLIDAGO - Goldenrod

Powdery Mildew (Erysiphe cichoracearum) was severe on cultivated goldenrods in the Montreal Botanical Garden (D. Leblond).

#### TACETES - Marigold

Aster Yellows (virus) caused moderate damage to plantings at Winnipeg, Man. (W.L. Gordon). Moderate infections were seen on African marigold at Southport, P. E. I. (J. E. Campbell).

## TULIPA - Tulip

Fire (Botrytis cinerea). Infection averaged about 5% in home gardens observed in Ottawa, Ont. (D.W. Creelman). Specimens were received from Chateau Richer, Quebec Co., Que. (D. Leblond). Fire was not serious during the main bloom period in N.S. Some early and late infections were observed (J.F. Hockey, K. A. Harrison).

Break (virus) was encountered occasionally in the Okanagan Valley, B.C. (G. E. Woolliams).

Tobacco Necrosis (virus). Tulips being forced in a greenhouse at Burnaby, near Vancouver, B.C., were severely infected with tobacco necrosis virus. Loss was primarily confined to the variety Elmus. Necrotic lesions on flowers and leaves rendered them unsuitable for market. These bulbs were imported from the Netherlands and were infected prior to arrival in Canada. The diagnosis of TNV as the cause of the disease was confirmed by transmission tests to a series of indicator plants (R. Stace-Smith).

## VIOLA - Pansy

Crown Rot and Leaf Spot (Centrospora acerina). This disease, reported in 1958, greatly curtailed production at Centerville, N. S. in 1959 (K. A. Harrison).

Powdery Mildew (Sphaerotheca humuli) was severe late in the season at Ste. Anne de la Pocatiere, Que. (D. Leblond).

## ZINNIA

Powdery Mildew (Erysiphe cichoracearum) affected 50% of the plants in a garden at St. Jean, Que. (L. Cinq Mars).