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HOST INDEX OF VIRUS DISEASES OF PLANTS

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The attempt to make a host index of the virus diseases of plants met with many difficulties that were not anticipated by the compiler. This was largely due to three causes: (1) the compiler did not have access to many of the original records, (2) some of the workers made incomplete (sometimes incorrect) statements in regard to previous records by other writers, and (3) many records were made before our present conception of virus diseases and are more or less unreliable. The result is that some of the records in this index are incomplete and others contain errors or may be of diseases not caused by viruses. Some virus diseases are known by more than one name as a result of being reported by students in different countries and sometimes by different writers in the same country. The number of diseases recorded in this index is not the same as the number of recognized viruses. It is well known that many viruses attack more than one species of host plants and in some cases the symptoms are different on different hosts. Furthermore, symptoms may also show variations due to other causes and are sometimes misleading. It is well known that some plants are attacked by two or more viruses, sometimes separately and sometimes in combination. Some viruses do not produce symptoms in their host under certain environmental conditions. These hosts are known as masked carriers. Some hosts never develop symptoms and are known as symptomless carriers. Sometimes two or more viruses produce the same or very similar symptoms on a specific host.

This index is not a classification of either the diseases or the viruses causing them. It is an attempt to bring the first records of each disease together for the convenience of the workers in this group of diseases. It is neither complete nor accurate. Several records have been omitted for want of complete or more accurate data. It was the intention of the compiler to insert the first records

of each disease on each host on which it occurs but this was found to be impracticable and there are some duplications.

Although we have many early records of virus diseases some of them are of very little value except for historical purposes. The research on virus diseases of plants may be considered as dating from the work on tobacco mosaic by Mayer in Europe in 1886 and the work of E. F. Smith on peach yellows in the United States in 1888. Since that time, the progress of our knowledge has been phenomenal. Up to the present time more than 5,000 papers and a few books have been published and virus diseases have been recorded in about 80 families, more than 400 genera and nearly 1,000 species of plants.

Although the agricultural industry is most interested in the diseases that attack crop plants, the studies of the past few years have demonstrated the necessity for the study of these diseases on weeds that may be carriers of these diseases and from which they may be transmitted to our economic plants and the necessity of the study of symptomless carriers and of the influence of environment on these viruses and the symptoms produced by them. It is very important that we should know more about the methods of transmission from year to year and from plant to plant.

A knowledge of the symptoms of virus diseases on different hosts and under different environmental conditions and the methods of transmission are very important when we consider the question of introduction of plants from one part of the world to another. When a virus diseased plant is introduced into a new home, the disease may be more or less severe than in its old home and may be transmitted to new hosts on which it may be very destructive.

This index is offered to the students of virus diseases of plants as a basis for reference work and in hopes that it will be useful in future studies. It may be corrected or extended in accordance with the ideas of the workers. If you will send the compiler your suggestions in regard to corrections and additions they will be used as far as possible in a supplement.

The compiler wishes to express his thanks to the many workers who have read this manuscript and made suggestions and corrections.

NOTE: A very few abbreviations have been used. They are U. S. for United States; N. J. for New Jersey; N. Y. for New York and D. C. for District of Columbia. Washington refers to the State of Washington. N for natural infection, I for artificial infection.

ACANTHACEAE

THUMBERGIA ALATA

- Aster yellow, Kunkel, N. Y., 1931, I by *Cicadula sexnotata*.
 Curly top of sugar beet. Severin & Freitag, California, 1933.
 I by *Eutettix tenellus*.

AIZOCEAE

MESEMBRANTHINUM CRYSTALLINUM

- Celery virus I, Wellman, Florida, 1935, I.

TETRAGONIA EXPANSA

- Ring spot of tobacco, Priode, N. Y., 1928, I from tobacco.
 Ring spot of tobacco, Wingard, Virginia, 1928, I from tobacco.
 Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.
 Tobacco mosaic, Grant, Wisconsin, 1934.
 Celery virus I, Wellman, Florida, 1935.

AMARANTHACEAE

AMARANTHUS AURORA

- Aster yellows, Kunkel, N. Y., 1926, I from *Callistephus chinensis*.

AMARANTHUS CAUDATUS

- Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

AMARANTHUS GRAECIZANS

- Curly top of sugar beet, Carsner, California, 1919, I.

AMARANTHUS PANICULATA

- Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

AMARANTHUS RETROFLEXUS

- Mosaic, Doolittle & Walker, Wisconsin, 1925, N.

AMARILIDACEAE

HIPPEASTRUM EQUESTRE

- Mosaic, Kunkel, Hawaii, 1928, N.
 Mosaic, Kawai, Japan, 1931.

HIPPEASTRUM JOHNSONII

- Mosaic, McKinney, Eckerson & Webb, 1923, N.

IRIS (bulbous)

- Mosaic. Brierley & McWhorter, U. S., 1934. A yellow stripe and grey disease which may be the same as mosaic reported as transmissible by McWhorter in 1932.

NARCISSUS sp.

Mosaic McWhorter & Weiss, Washington, 1932, N. The disease was known previously to this date.

Darlington reported a yellow stripe in England in 1908.

NARCISSUS PSEUDONARCISSUS

Mosaic, Togashi, Japan, 1931, N.

NARCISSUS INCOMPARABILIS

Mosaic, Togashi, Japan, 1931, N.

NARCISSUS TEZATTA

Mosaic, Ogilvie, Bermuda, 1928, N.

NARCISUS TEZATTA var. CHINENSIS

Mosaic, Fukushi, Japan, 1931, N.

ANACARDIACEAE

RHUS TYPHINA

Mosaic. This disease is mentioned in the literature but the compiler has not found any definite data.

APOCYNACEAE

VINCA sp.

Rosette, Brooks, Gambia, 1932, N. Appears to be the same as on *Arachis hypogea*.

VINCA ROSEA

Aster yellows, Kunkel, N. Y., 1931, I by *C. seznnotata*.

Curly top of sugar beet, Severin & Freitag, California, 1933. I by *E. tenellus*.

Celery virus 1. Wellman, Florida, 1935, I.

ARACEAE

ANTHURIUM ANDRAENUM

Virus disease (3 types), Verplancke, Belgium, 1930, N.

ANTHURIUM SCHERZERIANUM

Virus disease (mosaic), Verplancke, Belgium, 1930, N.

CALLA sp. (cultivated)

Mosaic, McWhorter, Oregon, 1935, N.

Spotted wilt of tomato, Gardner & Whipple, California, 1935, I.

MONSTERA DELICIOSA

Virus disease. Verplancke, Belgium, 1930, I from *Anthurium*.

PHILODENDRON CORSIANUM

Virus disease, Verplancke, Belgium, 1930, I

ZANTEDESCHIA AFRICANA

Virus disease, Verplancke, Belgium, 1930, I.

ASCLEPIADACEAE**ASCLEPIAS NIVEA**

Aster yellows, Kunkel, N. Y. 1926, from *C. chinensis*.

ASCLEPLAS SYRICA

Mosaic, Doolittle, Wisconsin, 1921, NI, from *Cucumis sativus*.

BALSAMINACEAE**IMPATIENS sp.**

Mosaic, mentioned in the literature but the compiler did not find the original record.

BEGONIACEAE**BEGONIA sp.**

Spotted wilt of tomato, Gardner, Tompkins & Whipple, 1934, I.
Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

BERBERDIACEAE**BERBERIS VULGARIS**

Vein mosaic, Blattny, Czechoslovakia, 1933, N.

BORAGINACEAE**ANCHUSA AZUREA**

Curly top of sugar beet, Severin & Freitag, California, 1933, I
by *E. tenellus*.

ANCHUSA BARRELIERI

Aster yellows, Kunkel, N. Y., 1931, by *C. sernotata*.

ANCHUSA CAPENSIS

Aster yellows, Kunkel, N. Y., 1931, I by *C. sernotata*.

BORAGO OFFICINALIS

Curly top of sugar beet, Severin, California, 1929, I.

CYNOGLOSSUM AMABILE

Curly top of sugar beet, Severin & Freitag, California, 1933, I
by *E. tenellus*.

Tobacco mosaic, Grant, Wisconsin, 1934.

HELIOTROPIUM PERUVIANUM

Curly top of sugar beet, Severin & Freitag, California, 1933, I
by *E. tenellus*.

MYOSOTIS SCORPIOIDES

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis* and back.
Curly top of sugar beet, Severin & Freitag, California, 1933, I
by *E. tenellus*.

MYOSOTIS SYLVATICA

Mosaic, Verplancke, Belgium, 1932, I.

BROMELIACEAE**ANANAS SATIVUS**

Yellow spot, Illingworth, Hawaii, 1931, NI, observed in 1926,
also attacks *Emilia flammea* and *Pisum sativus*.

Yellow spot, Carter, 1933, I. Has some character of a virus
disease.

CACTACEAE**EPIPHYLLUM BRIDGESII**

'' HARRISONII

'' HYBRIDUM RUBRUM

'' ROSA AMABILIS

'' SALMONEUM

'' TRUNCATUM

'' VIOLACEUM

PHYLLOCACTUS GAERTNERI var. MACKOYANUS

All the above are attacked by a virus disease. Reported from
Germany by Pape, 1932.

EPIPHYLLUM TRUNCATUM

Mosaic, Blattny & Vukulov, Czechoslovakia, 1932, N.

CAMPANULACEAE**CAMPANULA sp.**

Spotted wilt of tomato. Gardner, Tompkins & Whipple, Cali-
fornia, 1935, N.

CAMPANULA PYRAMIDALIS

Spotted wilt of tomato, Ogilvie, England, 1932, N.

LOBELLA CARDINALIS

Spotted wilt of tomato, Holmes Smith, England, 1934.

LOBELIA ERINUS

Aster yellows, Kunkel, N. Y. I *C. sexnotata*.

TRACHELIUM sp.

Spotted wilt of tomato, Ogilvie, England, 1932, N.

TRACHELIUM CAERULEUM

Spotted wilt of tomato, Ogilvie, England, 1935.

CANNACEAE**CANNA INDICA**

Mosaic, Fukushi, Japan, 1931.

CAPPARIDACEAE**CLEOME SPINOSA**

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

SAMBUCUS NIGRA

Dwarf, Blattny, Czechoslovakia, 1933 N, carried by *Aphis sambuci*.

CARYOPHYLLACEAE**DIANTHUS sp.**

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

DIANTHUS ALPINUS

Aster yellows, Kunkel, N. Y., 1931, I, by *C. sexnotata*.

DIANTHUS BARBATUS

Curly top of sugar beet, Severin & Freitag, California, 1933, N.

DIANTHUS CARYOPHYLLUS

Yellows, Woods, U. S. 1907, not proved to be a virus disease.
Mosaic, Fukushi & Kawai, Japan, 1932, N.

Curly top of sugar beet, Freitag & Severin, California, 1933, N.
I from sugar beet by *E. tenellus*.

DIANTHUS CHINENSIS

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

DIANTHUS PLUMARIUS

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

GYPSOPHILA PANICULATA

Aster yellows, Kunkel, N. Y., 1926, from *C. chinensis* and back.
Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

HERNIARIA GLABRA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

LYCHNIS CHALCEDONICA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.
by *E. tenellus*.

LYCHNIS CORONARIA

Aster yellows, Kunkel, N. Y., 1931 I by *C. sexnotata*.

LYCHNIS VISCARIA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.
Celery virus 1. Wellman, Florida, 1935, I.

POLYCARPON TETRAPHYLLUM

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

SILENE PENDULA

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis* and back.
Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

STELLARIA MEDIA

Curly top of sugar beet, Carsner, California, 1919, I
Delphinium stunt, Burnett, Washington, 1934, I.
Delphinium mosaic, Heald, Washington, 1934.

TUNICA SAXIFRAGA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

VACARIA SEGETALIS

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

CELASTRACEAE

CELASTRUM SCANDENS

Chlorosis, Clinton, Connecticut, 1919, N.

EVONYMOUS JAPONICA

Mosaic or chlorosis, Bauer, Germany, 1908, N. There are several
other records of chlorosis on varieties.

EVONYMOUS RADICANS

Infectious chlorosis, Rischkow, Ukraine, 1927, N.

CHENOPODIACEAE**ATRIPLEX ARGENTEA**

Curly top of sugar beet, Severin, California, 1919, N.

ATRIPLEX ARGENTEA EXPANSA

Curly top of sugar beet, Severin & Henderson, California, 1928. NI.

ATRIPLEX ARGENTEA HILLMANII

Curly top of sugar beet, Severin, California, 1934, I.

ATRIPLEX BRACTEOSA

Curly top of sugar beet, Severin, California, 1919, N. By inoculation, 1934.

ATRIPLEX CORDULATA

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

ATRIPLEX CORONATA

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

ATRIPLEX FRUCTICULOSA

Curly top of sugar beet, Severin, California 1928, I.

ATRIPLEX HORTENSIS RUBRA

Curly top of sugar beet, Severin & Henderson, California, 1934, I.

ATRIPLEX LENTIFORMIS

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

ATRIPLEX PARISHII

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

AGRIPLEX PATULA HASTATA

Curly top of sugar beet, Severin, California, 1928, NI.

ATRIPLEX PHYLLOSTEGIA

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

ATRIPLEX ROSEA

Curly top of sugar beet, Severin, 1919, N, by inoculation, 1928.

ATRIPLEX SEMIBACCATA

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

ATRIPLEX TURALENSIS

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

BETA sp.

Mosaic, Prilleux & Delacroix, France, 1898, N. Reported in U. S. by Townsend, 1915.

Curly top of sugar beet, California, 1899.

Potato mosaic, van der Meulen, Holland, 1928, I.

Leaf curl, Wille, Germany, 1928, I. Also by Müller in same year.

Leaf deformity, Böning, Germany, 1930, Different from spinach blight and mosaic. Attacks spinach and *Rumex*.

BETA MARITIMA

Curly top of sugar beet, Severin & Henderson, California, 1928, NI by *E. tenellus*.

BETA VULGARIS

Enerespamiento, Fawcett, Argentine, 1925, N.

Curly top of sugar beet, Severin & Henderson, California, 1927, N, by inoculation 1928. From tomato yellows, 1927.

Ring spot of tobacco. Priode, N. Y. 1928. I from tobacco.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

BETA VULGARIS CICLA

Curly top of sugar beet, Severin & Henderson, 1928, N. I. by *E. tenellus*.

Ring spot of tobacco, Wingard, Virginia, 1928. I. From *N. tabacum*.

Celery virus 1, Wellman, Florida, 1934, I.

Tobacco mosaic, Grant, Wisconsin, 1935, I.

CHENOPODIUM ALBUM

Curly top of sugar beet, Carsner, California, 1919, I. From sugar beet.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

CHENOPODIUM AMBROSIODES

Curly top of sugar beet, Severin & Henderson, California, 1934, NI.

CHENOPODIUM CALIFORNICUM

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

CHENOPODIUM LEPTOPHYLLUM

Curly top of sugar beet, Severin & Henderson, California, 1928, NI.

CHENOPODIUM MURALE

Curly top of sugar beet, Carsner & Stahl, California, 1924, I.
Celery virus 1, Wellman, Florida, 1935, I. Symptomless.

KOCHIA SCOPARIA var. **TRICHOPHYLLA**

Curly top of sugar beet, Severin & Henderson, California, 1933,
NI. by *E. tenellus*.

MONOLEPIS CHENOPODIODES

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

MONOLEPIS NUTTALLIANA

Curly top of sugar beet, Severin, California, 1934, N.

SALSOLA KALI var. **TENUIFOLIA**

Curly top of sugar beet, Carsner, California, 1919, N.

SPINACIA OLERACEA

Spinach blight, Mc Clintock & Smith, Virginia, 1918, N. Had
been know for 10 or 15 years, Hoggan (1933) reported that
this host was susceptible to cucumber mosaic, sugar beet
mosaic and tobacco ring spot.

Curly top of sugar beet, Carsner, California, 1919, I.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Leaf deformity, Böning, Germany, 1930, I.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Virus disease, Hoggan & Johnson, Wisconsin, 1935, I.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, Califor-
nia, 1935, I.

Celery virus 1, Wellman, Florida. 1935, I.

SUALEA MOGUINI

Curly top of sugar beet, Carsner, California, 1925, I, Very
resistant.

CISTACEAE**HELIANTHEMUM CHAMAECISTUS**

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

COMMELINACEAE**COMMELINA COMMUNIS**

Celery virus 1, Wellman, Florida, 1935, I.

COMMELINA LONGICAULIS

Mosaic, Cook, Puerto Rico, 1931, N.

COMMELINA NUdiflORA

Celery mosaic, Doolittle, U. S. 1931. Appears to be same as cucumber mosaic. Wellman (1934) described it as celery virus 1.

COMPOSITAE

ACROCLINIUM ROSEUM

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

AGERATUM sp.

Mosaic, Rao, India, 1933, N. Rao writes of studying mosaic of *Ageratum* and *Gislkia* in relation to sandal. This is the only record that has come to the attention of the compiler.

AGERATUM CONYZOIDES

Krul or Kroepek, Thung, Java, I. Thung reports that this disease is transmitted to *N. tabacum*.

AMBROSIA ARTEMISIFOLIA

Mosaic, Chapman, Massachusetts, 1913, I from *N. tabacum*.

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

AMBROSIA ELATIOR (*sarmemisiifolia*)

Celery virus 1, Wellman, Florida, 1934, I by *Aphis gossypii*.

AMBROSIA TRIFIDA

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

AMMOBIUM ALATUM

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

ANTHEMIS COTULA

Delphinium mosaic. Heald. Washington, 1934. A symptomless carrier.

Delphinium stunt, Burnett, Washington, 1934, I.

Curly top of sugar beet, Severin, California, 1934, I.

ANTHEMIS DIVICA

Mosaic, Verplancke, Belgium, 1932, I.

ANTHEMIS TINCTORIA

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

ARCTOTIS GRANDIS

Aster yellows, Kunkel, N. Y. 1931, I. by *C. serotata*.

ARCTOTIS STOECHADIFOLIA

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

ASTER sp.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

ASTER LEAVIS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

BAERIA ULIGINOSA

Curly top of sugar beet, Severin, California, 1934, N.

BELLIS PERENNIS

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.
Mosaic, Verplancke, Belgium, 1932, I.

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

BIDENS DISCOIDEA

Ring spot of tobacco, Wingard, Virginia, 1928, I. From *N. tabacum*.

BRACHYCOME IBERIDIFOLIA

Aster yellows, N. Y. 1926, I from *C. chinensis* and back.

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

CACALIA HASTATA

Aster yellows, Kunkel, N. Y. 1931, I by *C. serotata*.

CALENDULA sp.

Rosette, Brooks, Gambia, 1932, N. Similar to rosette on *Arachis hypogea*.

CALENDULA ARVENSIS

Mosaic, Verplancke, Belgium, 1932, I.

CALENDULA OFFICINALIS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.
Yellows, Fukushi, Japan, 1930, N.

Curly top of sugar beet, Freitag & Severin, California, 1933, I
from sugar beet by *E. tenellus*.

Spotted wilt of tomato, Pittman, Australia, 1934, N. Mild form.

CALLIOPSIS sp. (COREOPSIS)

Aster yellows, Kunkel, N. Y. 1926, I.

Rosette, Brooks, Gambia, 1932, N. Similar to resette of *A. hypogea*.

CALLIOPSIS DRUMMONDI

Spotted wilt of tomato. Pittman, Australia, 1934, N.

CALLISTEPHUS CHINENSIS

Aster yellows, Smith, Massachusetts, 1902, N. First record.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Yellows, Fukushi, Japan, 1929.

Spotted wilt of tomato, Pittman, Australia, 1934, N.

California aster yellows, Severin, California, 1929, I.

CARTHAMUS TINCTORIUS

Aster yellows, Kunkel, N. Y., 1931, by *C. saxnotata*.

CENTAUREA AMERICANA

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

CENTAUREA CYANUS

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

CENTAUREA IMPERIALIS

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

CENTAUREA MARGARITAE

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

CENTAUREA MOSCHATA

Curly top of sugar beet, Freitag & Severin, California, : 1933,
I from sugar beet by *E. tenellus*.

CHARIEIS HETEROPHILLA

Aster yellows, Kunkel, N. Y., 1931, I by *C. saxnotata*.

CHRYSANTHEMUM sp.

Yellows, Nelson, Michigan, 1925, N. Resembles, aster yellows.

Spotted wilt of tomato, Ainsworth, England, 1934, I.

CHRYSANTHEMUM CINERARIAEFOLIUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

CHRYSANTHEMUM CORONARIUM

Aster yellows, Kunkel, N. Y. 1926, I by *C. chinensis*.

Curly top of sugar beet, Freitag & Severin, California, 1933,

I from sugar beet by *E. tenellus*.

CHRYSANTHEMUM FRUTESCENS

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

Curly top of sugar beet, Freitag & Severin, California, 1933,

I from sugar beet by *E. tenellus*.

CHRYSANTHEMUM LEUCANTHEMUM

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

CHRYSANTHEMUM MAXIMUM

Aster yellows, Kunkel, N. Y. 1925, I from *C. chinensis*.

CHRYSANTHEMUM PARTHENIUM

Curly top of sugar beet, Freitag & Severin, California, 1933,

I from sugar beet.

CHRYSANTHEMUM SEGETUM

California aster yellows, Freitag & Severin, California, 1934, N.

CICHORIUM INTYBUS

Mosaic, Marchal, Belgium, 1931, N.

CINERARIA sp.

Mosaic & Dwarfing, Dickson, Canada, 1920, N.

Spotted wilt of tomato, Gardener, Tompkins, & Whipple, California, 1935, I

CINERARIA HYBRIDA

Aster yellows, Kunkel, N. Y., 1931, by *C. sexnotata*.

CIRSIIUM OLERACEUM

Aster yellows, Kunkel, N. Y., 1931, by *C. sexnotata*.

CLADANTHUS ARABICUS

Aster yellows, Kunkel, N. Y., 1931, by *C. sexnotata*.

COSMIDIUM sp.

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

COSMIDIUM sp. (-THELESERMA)

Aster yellows, Kunkel, N. Y. 1925, I from *C. chinensis* and back.

COSMUS sp.

Spotted wilt of tomato, Pittman, Australia, 1934, N. mild form.

COSMUS BIPINNATUS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

COSMUS HYBRIDA

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

COREOPSIS LANCEOLATA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

COREOPSIS TINCTORIA

Curly top of sugar beet, Severin & Freitag, California, 1933.
NI from sugar beet by *E. tenellus*.

COUSINIA HYSTRIX

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

DAHLIA sp.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

Rugose rosette, Brierley, N. Y. 1933.

Rugose mosaic, Brierley, N. Y. 1933.

Ring spot, Brierley, N. Y. 1933.

Yellow ring spot, Brierley, N. Y. 1933.

Dwarf, Brierley, N. Y., 1933.

Veinal mosaic, Brierley, N. Y., 1933.

Oakleaf, Brierley, N. Y., 1933.

Streak, Campbell, England, 1934, N.

DAHLIA VARIABILIS

Mosaic, Norton, Maryland, 1909, N. Attacks all species. The same or a similar disease occurs in Germany. Brandenburg (1929) reported two types.

Oak leaf, Brierley, N. Y. 1932, N.

DIMORPHOTHECA AURANTIACA

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis* and back.

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet, by *E. tenellus*.

ECHINOPS DAHURICUS

Aster yellows, Kunkel N. Y. 1931, I by *C. sexnotata*.

EMILIA sp.

Spotted wilt of tomato, Gardner & Whipple, California, 1935, I.

EMILIA FLAMMEA (-SAGITTATA)

Yellow spot of pineapple, Lindford, Hawaii 1931, NI. This host shows both a ring spot and a mosaic. *Thrips tobacco* from these plants produce yellow spots on pineapple.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

EMILIA SAGITTATA (-FLAMMEA)

Celery virus 1, Wellman, 1934, I.

ERIGERON, ANNUUS

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis* and back. Yellows, Kanegae, Japan, 1929.

ERIGERON CANADENSIS

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis* and back. Yellows, Waite, Tennessee, 1907, N. Appears to be the first record.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

ERIGERON GLABELLUS

Aster yellows, Kunkel, N. Y. 1931, by *C. sexnotata*.

ERIGERON LINEFOLIUS

Aster yellows, Kunkel, N. Y. 1931, by *C. sexnotata*.

ERIGERON SPECIOSUS

Aster yellows, Kunkel, N. Y. 1931, by *C. sexnotata*.

ETHULIA CONYZOIDES

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

EUPATORIUM PERFOLIATUM

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

EUPARIUM URTICAEFOLIUM

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

FELICIA AETHIOPICA var. GLANDULOSA

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

FELICIA AMELLOIDES

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

FILAGO GERMANICA

Aster yellows, Kunkel, N. Y. 1931, I. by *C. sexnotata*.

FLAVERIA REPANDA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

GALINSOGA PARVIFLORA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Mosaic, Verplancke, Belgium, 1932, I.

GALLARDIA ARISTATA

Aster yellows, Kunkel, N. Y. 1926, I.

GNAPHALIUM CHILENSE

Curly top of sugar beet, Severin, California, 1933, I.

GRINDELIA SQUARROSA

Curly top of sugar beet, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HEDYPTIS CRETICA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELENIUM AUTUMNALE

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELENIUM BIGLOVII

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELENIUM HOOPESSI

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELENIUM NUDIFLORIUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELIANTHUS ANNUUS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

HELICHRYSIUM BRACTEATUM

Curly top of sugar beet, Freitag & Severin, California, 1933, NI.
California Aster yellows, Freitag & Severin, California, 1934,
from sugar beet by *E. tenellus*.

HELIANTHUS DEBILIS

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet, by *E. tenellus*.

HELIANTHUS DECAPETALUS

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

HELECHRYSUM ARENARIUM

Aster yellows, Kunkel, NI, 1926, I from *C. chinensis*.

HELIOPSIS LAEVIS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HELIOPSIS SCABRA

Mosaic, Elmer, Iowa, 1925.

HELIPTERUM MANGLESII

Aster yellows, Kunkel, N. Y., 1931, I from *C. sexnotata*.

HELIPTERUM ROSEUM

Curly top of sugar beet, Freitag, & Severin, California, 1933, I from sugar beet by *E. tenellus*.

HERACIUM ALPINUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

HYPOCHAERIS RADICATA

Mosaic, Pantanelli, Italy, 1920, N.

KOELPINIA LINEARIS

Aster yellows, Kunkel, N. Y. 1931, NI by *C. sexnotata*.

LACTUCA SATIVA

Mosaic, Jagger, Florida, 1921, N., Nishimura (1932) made inoculations from *Asclepias syriaca* and *Rumex britanica* and back.

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

Mosaic, Fukushi, Japan, 1928.

Rio Grande disease (-white heart and rabbit ear) Carpenter, Texas, 1916, N.

Spotted wilt of tomato, Tompkins & Gardener, California, 1934, NI.

LACTUCA SATIVA, var, CAPITATA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

California aster yellows, Severin, California, 1929, NI.

LECTUCA SCARIOLA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Delphinium stunt, Burnett, Washington, 1934, I.

Delphinium virus, Heald, Washington, 1934, I, Dwarfing, Curling and mottling.

Big vein, Jagger & Chandler, California, 1934, I. Observed previously. Not proved to be a virus but is similar to the soil borne mosaic of wheat.

LAGASCAEA MOLLIS

Aster yellows, Kunkel, N. Y., 1931, I from *C. sexnotata*.

LAXIA sp.

Spotted wilt of tomato, Gardner, Tompkins, & Whipple, California, 1935, I

LAPPA (ARCTIUM) sp.

Feather leaf, Shapiro, Ukraine, 1934, I.

LEONTODON AUTOMALIS

Yellow disease, Morse, Maine, 1908, I.

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

LEONTOPODIUM ALPINUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

LEPTOSYNE STILLMANI

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

LINDHEIMERIA TEXANA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

LEONAS INODORA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

MATRICARIA ALBA

Aster yellows, Kunkel, N. Y. 1925, I from *C. chinensis*.

MATRICARIA INODORA

Curly top of sugar beet, Freitag & Severin, California, I from sugar beet by *E. tenellus*.

MICROSERIA DOUGLASHII

Curly top of sugar beet, Severin, California, 1934, N.

MULGEDIUM ALPINUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

PARTHENIUM INTEGRIFOLIUM

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

PETASITES ALBUS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

PYRETHRUM sp.

Aster yellows, Kunkel, N. Y., 1926, from *C. chinensis*.

RUDBECKIA HIRTA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

SANVITALIA PROCUMBENS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

SCHKUHRIA ABROTANOIDES

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

SCOLYMUS HISPANICUS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

SENECIO VULGARIS

Mosaic, Verplancke, Belgium, 1932, I

Curly top of sugar beet, Severin, California, 1934, I.

SONCHUS ARVENSIS

Aster yellows, Kunkel, N. Y. 1926, NI from *C. chinensis* and back.

SONCHUS ASPER

Curly top of sugar beet, Severin, California, 1934, NI.

SONCHUS OLERACEUS

Aster yellows, Kunkel, N. Y., 1926, NI from *C. chinensis* and back.

Curly top of sugar beet, Severin, California, 1934, I.

SPILANTHES ACMELIA

Aster yellow, Kunkel, N. Y. 1931, NI by *C. sexnotata*.

STOKESIA LAEVIS

Mosaic, Elmer, Iowa, 1924, N.

SYNEDRELLA NODIFLORA

Krul or Kroepoek, Thung, Java, 1934, N.

TAGETES ERECTA

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*. Probably same as celery yellows, white heart, rabbit ear and Río Grande diseases, Severin (California, 1929) reported celery yellows, inoculated from celery.

Rings spot of tobacco. Wingard, Virginia, 1923, I, from *N. tabacum*.

Kroepoek, Thung, Java, 1932, I. Also on *N. tabacum*.

- Curly top of sugar beet, Severin & Freitag, California, 1931, N.
 Delphinium mosaic, Heald, Washington, 1934, I. Dwarfing.
 Celery virus 1, Wellman, Florida, 1934, I.
 Curly top of sugar beet, Freitag & Severin, California, 1933,
 NI from sugar beet by *E. tenellus*.
 California aster yellows, Severin & Freitag, California, 1934,
 N celery virus, Wellman, Florida, 1935, I.

TAGETES PATULA

- Curly top of sugar beet, Freitag & Severin, California, I from
 sugar beet by *E. tenellus*.
 Tobacco mosaic, Grant, Wisconsin, 1934, I.
 Celery virus 1, Wellman, Florida, 1934, I.
 California aster yellows, Severin & Freitag, California, 1934, I.

TARAXACUM OFFICINALIS

- Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and
 back.

TARAXACUM PLATICARPUM

- Yellows, Fukushi, Japan, 1929.

TUSSIDAGO FARFARA

- Potato mosaic, van der Meulen, Holland, 1928, I.

THELESERMA HYBRIDUM

- Aster yellows, Kunkel, N. Y. 1931, I from *C. chinensis*.

THITHONIA DIVERSIFOLIA

- A virus disease, van der Bijl, South Africa, 1931.

TOLPIS BARBATA

- Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

TRAGOPOGON FLOCCOSES

- Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

TRAGOPOGON PORRIFOLIUS

- Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

TRIDAX TRILOBATA

- Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Troximon glaucum

- Aster yellows, Palm, Sweden, 1933.

URSINIA ARTHEMOIDES

- Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

VERBESINA ALTEMIFOLIA

Ring spot of tobacco, Henderson & Wingard, Virginia, 1931,
NI by insects.

XANTHIUM SPINOSUM

Curly top of sugar beet, Severin, California, 1934, NI.

ZACYNTHA VERUCOSA

Aster yellows, Kunkel, N. Y. 1931, by *C. sexnotata*.

ZINNIA sp.

Leaf curl of cotton, Mathur, India, 1932.

Spotted wilt of tomato. England, 1932, I.

Delphinium stunt. Burnett. Washington, 1931, I.

ZINNIA ELEGANS

Mosaic, Elmer, Iowa, 1924, N.

Mosaic, Fukushi, Japan, 1927.

Ring spot of tobacco, Wingard, Virginia, 1928, I, from *N. tabacum*.

Aster yellows, Severin, California, 1929, I. May be same as
white heart, rabbit ear and Río Grande disease of lettuce.

Said to attack, *Apium repaceum*, *Plantago major*.

Tobacco mosaic. Grant, Wisconsin, 1934, I.

ZINNIA MULTIFLORA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

CONVOLVULACEAE**CONVOLVULUS ARVENSIS**

Mosaic, Blattny, Cezechoslovakia, 1930. Carried by *Aphis* sp.
and larva of *Nematus ventricosus*.

Spotted wilt of tomato, Green, England, 1935.

IPOMOEA BATATAS

Mosaic, Ensign, Arkansas, 1919, N. Also reported by Rosen
who found the disease in 1918.

Celery virus 1, Wellman, Florida, 1935, I.

IPOMOEA NIL

Mosaic, Cook, Puerto Rico, 1931, N.

IPOMOEA PURPUREA

Tobacco ring spot, Wingard, Virginia, 1928, from *N. tabacum*.

Celery virus 1, Wellman, Florida, 1935. I.

IPMOEA SETOSA

Curly top of sugar beet, Freitag & Severin, California, 1935,
from sugar beet by *E. tenellus*.

IPOMOEA TRICOLOR

Tobacco mosaic, Grant, Wisconsin, 1934, I.

QUAMOCLIT LOBATA

Curly top of sugar beet. Freitag & Severin, California, 1933, I.

QUAMOCLIT PENNATA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

CRUCIFERAE

ALYSSUM COMPACTUM PROCUMBENS

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

ARMORACIA RUSTICANA

Curly top of sugar beet, Severin, California, 1917, I, by *E. tenellus*.

A virus disease by Hoggan & Johnson, Wisconsin, 1935, N.

BARBAREA BARBAREA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

BRASSICA sp.

Virus disease, K. M. Smith, England, 1935, N.

BRASSICA ALBA

Mosaic, Clayton, Long Island, 1930, N.

Tobacco Mosaic, Grant, Wisconsin, 1934, N.

Curly top of sugar beet, Severin, California, 1929, I.

BRASSICA ARVENSIS

Curly top of sugar beet, Severin, California, 1934, NI.

BRASSICA CAMPESTRIS

Mosaic, Gardner, Indiana, 1921, N.

BRASSICA CHINENSIS

Mosaic, Schultz, U. S., 1921, N.

BRASSICA JAPONICA

Mosaic, Schultz, U. S., 1921, N.

BRASSICA NAPOBRASSICA

Mosaic, Clayton, Long Island, 1930, N.

BRASSICA NAPUS

Mosaic, Clayton, Long Island, 1930, N.

BRASSICA NIGRA

Mosaic, Clayton, Long Island, 1930, N.

Virus disease, Hoggan & Johnson, Wisconsin, 1935, N.

BRASSICA NIGRA ACEPHALA

Virus disease, Tompkins, California, 1934, I.

BRASSICA NIGRA BOTRYTIS

Virus disease, Tompkins, California, 1934, N.

BRASSICA NIGRA CAPITATA

Curly top of sugar beet, Severin, California, 1929, I.

Virus disease, Tompkins, California, 1934, I, and Hoggan & Johnson, Wisconsin, 1935, N.

Spotted wilt of tomato, Gardner, Tompkins, & Whipple, California, 1935, I.

BRASSICA OLERACEA ACEPHALA

Curly top of sugar beet, Severin, California, 1929, I.

BRASSICA OLERACEA BOTRYTIS

Curly top of sugar beet, Severin, California, 1929, I.

BRASSICA OLERACEA CAPITATA

Curly top of sugar beet, Severin, California, 1929, NI.

BRASSICA PEPINENSIS

Mosaic, Schultz, U. S. 1921, N.

BRASSICA PE-TSAI

Mosaic, Takimoto, Japan, 1927, N.

BRASSICA RAPA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Mosaic, Schultz, U. S. 1921, I.

Curly top of sugar beet, Severin, California, 1929.

Celery virus, 1, Wellman, Florida, 1935, I.

CAPSELLA BURSA-PASTORIS

Curly top of sugar beet, Severin, 1929, NI.

Delphinium mosaic, Heald, Washington, 1934, I. Symptomless carrier.

Delphinium stunt, Burnett, Washington, 1934, I.

CHEIRANTHUS sp.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, California, 1935, I.

CHEIRANTHUS ALLIONII

Aster yellows, Kunkel, N. Y. 1931, I, by *C. sexnotata*.

HESPERIS MATRONALIS

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

IBERIS UMBELLATA

Curly top of sugar beet, Freitag, California, 1933, I, from sugar beet by *E. tenellus*.

ISATIS TINCTORIA

Mosaic, Soriano, Argentina, 1932, N.

LEPIDIUM NITIDUM

Curly top of sugar beet, Freitag & Severin, California, 1934, N.

LUNARIA ANNUA

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet and back.

MALCOMIA MARITIMA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

MATHIOLA INCANA

Curly top of sugar beet, Freitag & Severin, California, 1934, I, from sugar beet by *E. tenellus*. Also with the variety *annua*.

RADICULA SYLVESTRIS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

RAPHANUM MACROPODA

Mosaic, Takimoto, Japan, 1927, N.

RAPHANUM RAPHANISTRUM

Virus diseases, van der Bijl, South Africa, 1931, N.

RAPHANUS SATIVUS

Mosaic, Kulkarni India, 1924.

Mosaic, Gardner, Indiana, 1925.

Curly top of sugar beet, Severin, California, 1927, NI by *E. tenellus*.

SINAPSIS sp.

Mosaic, Takimoto, Japan, 1927, N.

SINAPSIS (BRASSICA) ALBA

Potato mosaic, van der Meulen, Holland, 1928, I.

SINAPSIS ARVENSIS

Mosaic, Gram, Denmark, 1925, N. Also observed the disease on related plants.

THELYPODIUM LASIOPHYLLUM

Curly top of sugar beet, Severin, California, 1934, N.

CUCURBITACEAE

BENINCASA CERIFERA

Mosaic, Doolittle & Walker, Wisconsin, 1925.

BENINCASA HISPIDA

Mosaic (White pickel), Jagger, U. S., 1918 I from *C. sativus*

BRYONOPSIS LACINIESTA

Mosaic, Doolittle & Walker, Wisconsin, 1925.

CHAYOTE EDULIS

Celery virus 1, Wellman, Florida, 1935, I. Symptomless.

CITRULLUS VULGARIS

Mosaic, Doolittle, Wisconsin, 1925, I from *C. sativus*.

Mosaic (White pickel) Jagger, U. S. 1918, I from *C. sativus*.

Curly top of sugar beet, Severin, California, 1928, N.

Ring spot of tobacco, Wingard, Virginia, 1927, I from *N. tabacum*.

Bettendorf mosaic, Porter, Iowa, 1931.

Green mottle mosaic (Virus 3,) Ainsworth, England, 1935, I from *C. sativus*.

Yellow mosaic (virus 4) Ainsworth, England, 1935.

Celery virus 2, Wellman, Florida, 1934, I.

CUCUMIS ANGURIA

Mosaic (white pickel) Jagger, U. S. 1918, I.

Bettendorf mosaic, Porter, Iowa, 1931. Also attacks chinese long, water melon and citron.

Cucumber mosaic (3 types), Johnson, Kentucky, 1930.

Mosaic, Doolittle & Walker, Wisconsin, 1925, I from *C. sativus*

Celery virus 1, Wellman, Florida, 1935, I.

Green mottle mosaic, (virus 3). Ainsworth, England, 1935, I.

Yellow mottle mosaic (virus 1), Ainsworth, England, 1935, I.

CUCUMIS FILICIFOLIA

Mosaic, Doolittle, Wisconsin, 1925, I.

CUCUMIS GROSSULARIAE FORMIS

Mosaic Doolittle, Wisconsin, 1925. I.

CUCUMIS MADERSPATANUS

Green mottle mosaic (virus 3), Ainsworth, England, 1935, I,
from *C. sativus*.

Yellow mottle mosaic, (virus 1), Ainsworth, England, 1935, I
from *C. sativus*.

CUCUMIS MELO

Chlorosis, Clinton, Connecticut, 1908, N. Also on squash and
muskmelon.

Mosaic (white pickel). Jagger, U. S. 1918, I from *C. sativus*.

Mosaic, Doolittle, U. S. 1925, NI from *C. sativus*. Also on
varieties *dudain*, *fevuosus* & *utilissima*.

Mosaic, Fukushi, Japan, 1928. On var. *conomon*, Hori, Japan,
1922.

Celery virus 1, Wellman, Florida, 1934, N.

Green mottle mosaic (virus 3) Ainsworth, England, 1935, I.

Yellow mosaic (virus 4), Ainsworth, England, 1935, I.

Yellow mosaic (virus 1) Wellman, Florida, 1935, I.

CUCUMIS MELO CANTALUPENSIS

Curly top of sugar beet, Severin, California, 1927, N.

Ring spot of tobacco, Wingard, Virginia, 1928, NI from *N.*
tabacum and back.

CUCUMIS MELO INDODORUS

Curly top of sugar beet, Severin & Henderson, California,
1928, N.

CUCUMIS MELO RETICULATUS

Curly top of sugar beet, Severin & Henderson, California, 1928,
NI.

CUCUMIS METALLIFERUS

Mosaic, Doolittle, U. S. 1925, N.

CUCUMIS MOSCHATA

Mosaic, Doolittle & Walker, Wisconsin, 1925, from *C. sativus*.

CUCUMIS ODORATISSIMUS

Mosaic Doolittle & Walker, Wisconsin, 1925, I from *C. sativus*.

CUCUMIS SATIVUS

First record by Selby in Ohio in 1902. Many later records
which may or may not be same, Walker (1925) reported
inoculation from *Physalis sublabrata* & *P. heterophylla*;

Elmer (1925) from *P. vulgaris*, *Apium graveolens* and *Euphorbia perslii*; Doolittle & Walker (1925) from *Capiscum annuum* and *Amaranthus retroflexus*; and Walker (1925) from *Phytolacca decandra*.

White pickel, Clinton, Connecticut, 1915, N.

Mosaic (on leaves only) Jagger, U. S. 1917, N.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum* and back.

Mosaic, Hori, Japan, 1912.

Curly top of sugar beet. Severin, California, 1928, NI.

Cucumber mosaic, Johnson, Kentucky, 1930, NI from *N. tabacum*, *C. sativus*, *Asclepias syrica*. Reports three distinct strains of cucumber virus.

Bettendorf mosaic, Porter, Iowa, 1930, I.

Healthy tobacco mosaic, Johnson, Kentucky, 1930.

Mild tomato mosaic (a single virus or combination of tomato and tobacco mosaic viruses.), Ainsworth England, 1933, I.

Delphinium virus, Heald, Washington, 1934, I.

Delphinium stunt, Burnett, Washington, 1934, I.

Green mottle mosaic (virus 3) Ainsworth, England, 1935. NI

Yellow mosaic (virus 4), Ainsworth, England, 1935, NI, from *C. sativus* and *N. tabacum*.

Yellow mottle mosaic (virus 1). Ainsworth, England 1935, NI from *C. sativus* to *N. tabacum*.

Celery virus, Wellman, Florida, 1935. I.

CUCURBITA sp.

Curly top of sugar beet, McKay & Dykstra, Oregon, 1927, I by *E. tenellus*.

CUCURBITA MAXIMA

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

Curly top of sugar beet, Severin & Henderson, California, 1928, N.

Celery virus 1. Wellman, Florida, 1935, I.

CUCURBITA MOSCHATA

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

Mosaic, Elmer, Iowa, 1924, I. *Lycopersicon esculentum* and *N. tabacum*.

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

Ring spot of tobacco, Wingard, Virginia, 1928 from *N. tabacum*.

Mosaic, Fukushi, Japan, 1928 and Nakata et al, Korea, 1928.

CUCURBITA PEPO

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.
Mosaic, Doolittle, U. S., 1925, N. By inoculation from *N. tabacum* by Elmer, 1925.

Curly top of sugar beet, Freitag & Severin. California, 1925,
NI from sugar beet. By *E. tenellus*.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Yellow mottle mosaie, (virus 1). Ainsworth, England, 1935, I
from *C. sativus*.

Celery virus 1, Wellman, Florida, 1935, I.

CUCURBITA PEPO VAR. CONDENSA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Celery virus L. Wellman, Florida, 1935, I.

CUCURBITA PEPO VAR. OVIFERA

Ring spot of tobacco Wingard, Virginia, 1928, I from *N. tabacum*.

EUCBALLIUM ELETARIUM

Mosaic, Doolittle. Wisconsin, 1925, N.

LAGENARIA LEUCANTHA

Mosaic, Doolittle, & Walker, Wisconsin, 1925, I from *C. sativus*.

Ring Spot, Wingard, Virginia, 1928, I from *N. tabacum*.

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

LAGENARIA VULGARIS

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

LAGENARIA VULGARIS, VAR. ELEVATA

Mosaic, Hori, Japan, 1922.

LUFFA sp.

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

LUFFA ACUTANGULIS

Mosaic, Doolittle, U. S. 1925, N. By inoculation from *C. sativus*
by Doolittle and Walker, Wisconsin, 1925.

LUFFA CYLINDRICA

Mosaic, by inoculation from *C. sativus*, by Doolittle & Walker,
Wisconsin, 1925.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

MELOTHIA SCABRA

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

MICRAMPELIS LOBATA

Mosaic, Doolittle, Wisconsin, 1925, U. S., N.

MOMORDICA BALSAMINA

Mosaic or white pickel, Jagger, U. S. 1918, I from *C. sativus*.

MOMORDICA CHARANTIA

Mosaic, Doolittle, & Walker, Wisconsin, 1925, 1 from *C. sativus*.

MOMORDICA INVOLUERATA

Mosaic, Doolittle & Walker, Wisconsin, 1925, I from *C. sativus*.

SICYOS ANGULATUS

Mosaic, Doolittle & Walker, Wisconsin, 1925, I from *C. sativus*.

TRICHOSANTHES sp.

Bettendorf mosaic, Porter, Iowa, 1930, N.

TRICHOSANTHES ANGUINA

Mosaic, Doolittle, Wisconsin, 1925, N.

Curly top of sugar beet, Freitag & Severin, California, 1933.

I from sugar beet by *E. tenellus*.

TRICHOSANTHES CUCUMEROIDES

Mosaic, Kasai, Japan, 1924.

DATISCAEAE

DATISCA CANNABINA

Aster yellows, Kunkel, N. Y. 1931, I by *C. saxnotata*.

DIPSACACEAE

SCABIOSA sp.

Spotted wilt of tomato, Pittman, Australia, 1934, N.

SCABIOSA ATROPURPUREA

Aster yellows, Kunkel, N. Y. 1926, I.

Ring spot of tobacco, Wingard, Virginia, 1929, I from *N. tabacum*.

Curly top of sugar beet, Severin & Freitag, California, 1933, N.
Celery virus 1, Wellman, Florida, 1935, I.

ERICACEAE

RHODODENDRON sp.

Mosaic Pape, Germany, 1931.

VACCINIUM MACROCARPON

False blossom of cranberry, Shear, Wisconsin, 1907, N. Cause not known for many years.

EUPHORBIACEAE

ADENOROPHIUM GOSSYPIFOLIUM

Mosaic, Cook, Puerto Rico, N.

EUPHORBIA HELIOSCOPIA

Mosaic & Yellows, Verplancke, Belgium, 1932, N.

EUPHORBIA MARGINATA

Curly top of sugar beet, Freitag & Severin, California, 1933.
I, from sugar beet by *E. tenellus*.

EUPHORBIA PEPLUS

Curly top of sugar beet, Severin, California, 1934, I.

EUPHORBIA PULCHENIMA

Leaf curl, Pape, Germany, 1934.

MANIHOT sp.

Mosaic, McKinney, West Coast Africa, 1929, N.

Mosaic, Dade, Gold Coast, 1926, N.

A second mosaic, Kufferath & Ghésquire, Belgian Congo, 1932.
N.

MANIHOT DULCIS

Mosaic, Joly, Northern Africa, 1931, N.

MANIHOT GLAZIOVII

Mosaic, Deighton, Sudan, 1929, N.

A second mosaic, Kufferath and Ghésquire, Belgian Congo, 1932,
N.

MANIHOT ULTISSIMA

Mosaic, Joly, Africa, 1931, N.

MERCURIALES, ANNUA

Mosaic, Verplancke, Belgium, 1932. I.

RICINUS COMMUNIS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

GERANACEAE

ERODIUM BOTRYS

Curly top of sugar beet, Severin, California 1934, NI.

ERODIUM CICUTARIUM

Curly top of sugar beet, Carsner, California, 1919, I from sugar beet.

ERODIUM MACROPHYLLUM

Curly top of sugar beet, Severin, California, 1934, N.

ERODIUM MOSCHATUNI

Curly top of sugar beet, Carsner, California, 1919, I, from sugar beet.

GERANIUM sp.

Crinkle mosaic, Pape, Germany, 1932.

GERANIUM CAROLINIANUM

Celery virus 1, Wellman, Florida, 1935, I by *A. gossypii*.

IMPATIENS BALSAMINA

Mosaic, Ocfemia, Philippine Islands, 1924, N.

OXALIS CORNICULATA

Curly top of sugar beet, Severin, California, 1934, I.

OXALIS CORNICULATA ATROPURPUREA

Curly top of sugar beet, Severin, California, 1934, I.

PELARGONIUM sp.

Leaf curl, Fulmek, Germany, 1917, N.

Aucuba mosaic, Blattny, Czechoslovakia, 1933, N.

Interveinal chlorosis, Blattny, Czechoslovakia, 1933, N.

PELARGONIUM HORTORUM

Curly top of sugar beet, Severin & Freitag, California, 1933, NI from sugar beet by *E. tenellus*.

Celery virus 1, Wellman, Florida, 1935, I.

PELARGONIUM ZONALE

Leaf curl, Pape, Germany, 1927, N.

Mosaic, Verplancke, Belgium, 1932.

GESNERIACEAE

DIDYMOCARPUS HORSFIELDII.

GLOXINIA sp.

Aster yellows, Kunkel, N. Y. 1926, I by *C. seaxnotata*.

GLOXINIA SPECIOSA

Spotted wilt of tomato. Green, England, 1935.

LECHERIA ROSEA

Virus, Deighton, Sudan, 1932, I.

GRAMINEAE

ACHYRODES AUREUM

Mosaic Elmer, Iowa, 1925, I from *S. officinarum*.

ALOPECUUS FULVUS

Dwarf of rice, Fukushi, Japan, 1933, I by *Nephotettix apicalis* var *cincticeps*.

ANDROPOGON SORGHUM-SUDANSIS

Mosaic, Kunkel, Hawaii, 1924.

ANDROPOGON VIRGATUS

Mosaic, Kunkel, Hawaii, 1924.

AVENA SATIVA

Dwarf of rice, Fukushi, Japan, 1933, I by *N. apicalis* var. *cincticeps*.

BRACHIARIA PLATYPHYLLA

Sugar-cane mosaic, Brandes & Kapphak, U. S. 1923, I from *Saccharum officinarum*.

CHAETOCHELOA LUTESCENS

Sugar-cane mosaic, Brandes, 1919, N. Inoculation by Brandes & Kapphak in 1923.

CHAETOCHELOA MAGNA

Sugar-cane mosaic, Brandes & Kapphak, U. S. 1923, I from *S. officinarum*.

CHAETOCHELOA VERTICILLATA

Sugar-cane mosaic, Kunkel, Hawaii, 1924, N.

COIX LACHRYMA-JOBI

Mosaic, Brandes, Papua.

Clorotic streak, Martin, Hawaii, 1933, N.

CYMBOPOGON CITRATUS

Streak, Storey & McClean, South Africa, 1930, N.

DACTILOCTENIUM ALEGYPTIACEUM

Streak, Storey & McClean, South Africa, 1930, N.

DIGITARIA HORIZONTALIS

Mosaic, Storey, South Africa, 1924, NI, Storey, in a letter to the compiler says that this host is probably the same as the American *Syntherisma sanguinalis*,
Streak, Storey, South Africa, 1924. NI.

DIGITARIA SMUTSII

Streak, Storey, South Africa, 1924, N.

DIGITARIA ERIANTHA

Streak, Storey, South Africa, 1924, N.

DIGITARIA MARGINATA

Streak, Storey, South Africa, 1924, N.

DIGITARIA TERNATA

Streak, Storey, South Africa, 1924, N.

DIPLACHNE ELEUSINE

Streak, Storey, & McClean, South Africa, 1930, N.

ECHINOCHLOA COLONA

Sugar-cane mosaic, Chardon & Veve, Puerto Rico, 1923, I.

ECHINOCHLOA CRUS GALLI

Sugar-cane mosaic. Brandes & Kapphak, 1923 by inoculation from *S. officinarum*.

ECHINOCHLOA CRUS GALLI EDULIS

Dwarf of rice, Shiro, Sangoku & Shiratama, Japan, 1930, I by *N. apicalis* var *cincticeps*.

ELEUSINE INDICA

Sugar-cane mosaic, Chardon & Veve, Puerto Rico, 1931, I by *Aphis maidis*.

Streak, Storey, South Africa, 1925, NI, Mild form.

ERAGROSTI ASPERA

Streak, Storey, South Africa, 1925, N.

ERAGROSTI CILIARIS

Mosaic, Storey, South Africa, 1924.

Streak, Storey, South Africa, 1924.

ERAGROSTIS VALLIDA

Streak, Storey, South Africa, 1928, N.

EUCHLAENA MEXICANA

Celery virus 1, Wellman, Florida, 1934, I.

GYNERIUM SAGITATUM

Sugar-cane mosaic. Abbott, Perú, 1930, N. Also occurs in, Puerto Rico.

HOLCUS HALEPENSIS

Mosaic, Kunkel, Hawaii, 1924.

HOLCUS SORGHUM

Sugar-cane mosaic. Brandes & Kapphak, U. S. 1923, I. Celerly virus 1, Wellman, Florida, 1934. I.

HORDEUM SATIVUM

Mosaic, McKinney, U. S. 1930, I from Wheat.

HORDEUM SATIVUM vars. HEXASTICHON COELESTI & VULGARE

Dwarf, Shikoku, Japan, 1916, N and Marumi in 1933.

ORYZA SATIVA

Stripe, Hnoshu & Shikoku, Japan, 1917.

Dwarf, Takada, Japan, 1895, N. Known for many years. Said to be first virus disease in which transmission by insects was recognized.

PANICUM BARBINODE

Mosaic, Stahl, Cuba, 1927, N.

PANICUM DICHOTOMIFLORUM

Sugar-cane mosaic, Brandes & Kapphak, U. S. 1923, I from *S. officinarum*.

PANICUM LONGIJUBATUM

Sugar-cane mosaic, Storey, South Africa, 1924, N.

PANICUM MILIACEUM

Dwarf of rice, Wase, Japan, 1930, I, by *N. apicalis* var. *cineticeps*.

PASPALUM BOSCIANUM

Sugar-cane mosaic, Brandes & Kapphak, U. S., 1923, I.

PASPALUM FIMBRIATUM

Sugar-cane mosaic, Walker & Stahl, Cuba, 1926.

PASPALUM SCROBICULATUM

Streak, Storey, South Africa, 1924, N.

PASPALUM VIRGATUM

Sugar-cane mosaic, Walker & Stahl, Cuba, 1926.

PENNISETUM GLAUCUM (-P. TYPHOIDEUM)

Sugar-cane mosaic. Inoculation from *S. officinarum* by Brandes & Kapphak, 1923.

POA PRATENSIS

Dwarf of rice, Fukushi, Japan, 1933, I by *N. apicalis* var. *cincticeps*.

ROTTBOELLIA EXALTATA

Streak, Storey & McClean, South Africa, 1930, N.

SACCHARUM NARENGA

Sugar-cane mosaic, Brandes & Kapphak, U. S. 1923, I.

SACCHARUM OFFICINARUM

Sereh, ? Java, 1882, N.

Sugar-cane, van Musschenbroek, Java, 1890, N. Reported in 1892 by Wilbrink and Ledebor as gelestrepenzikte (-gold stripe). Inoculation from *Achyrodes aureum* by Elmer in 1925.

Fiji, Lyon, Fiji, 1910, N. Known for many year before reported. Dwarf, Bell, Australia, 1932, N. Observed first in 1930.

Streak, Storey, 1924, NI. This disease attacks Uba cane which is very resistant to mosaic. First reported by Fuller (1901) who believed it to be due to a soil condition. Wuthrich described this disease as "yellow stripe" (1920), but it was not recognized as a virus disease and distinct from mosaic until 1924.

4th disease, Wilbrink, Java, 1929, N was later reported by Martin of Hawaii as "chlorotic streak."

Cuban streak, Priode, Cuba, 1933.

SECALE CEREALE

Mosaic, McKinney, U. S. 1930, I from wheat.

Dwarf of rice, Fukushi, Japan, 1933, I by *N. apicalis* var. *cincticeps*.

Celery virus 1, Wellman, Florida, 1934, I.

SETARIA SULCATA

Sugar-cane mosaic, Storey, South Africa, 1929, NI.

SETARIA VERTICILLATA

Streak, Storey McClean, South Africa, 1930.

SORGHUM sp.

Stripe of corn, Briton Jones, Trinidad, 1933, NI. Same as on corn.

SORGHUM ARUNDINACEUM

Transvaal mosaic, Storey, South Africa, 1929, NI. This diseases does not attack sugar-cane. The vector is *A. maidis*.

Streak, Storey & McClean, South Africa, 1930, N.

Sugar-cane mosaic, Storey, South Africa, 1929, N.

SYNTHERISMA PURIENS

Mosaic, Kunkel, Hawaii, 1934.

SYNTHERISMA SANGUINALIS

Sugar-cane mosaic, Chardon & Veve, Puerto Rico, 1923.

SYNTHERISMA VERTICILLARIS

Sugar-cane mosaic, Chardon & Veve, Puerto Rico, 1923.

TRAGUS RACEMOSUS

Streak, Storey, & McClean, South Africa, 1930, N.

TRIPSACUM LAXUM

Sugar-cane mosaic, Kunkel, Hawaii, 1924.

TRITICUM AESTIVUM

Mosaic, Lyman, Illinois, 1919, N. This is the first record. It was supposed to be "take all" but was proved to be a virus diseases about 1923.

Celery virus 1, Wellman, Florida, 1934, I.

TRITICUM COMPACTUM, T. DICOCUM, T. DURUM, T. MONOCOCCUM, T. POLONICUM, T. SPELTA, T. TURGIDUM and T. VULGARE.

Mosaic, McKinney, U. S. 1930, I from *T. aestivum*.

TRITICUM SATIVUM var. VULGARE

Dwarf, Shikoku, Japan, 1916.

TRITICUM VULGARE

Dwarf of rice, Harukomu, Japan, 1934, I by *N. apicalis* var. *cincticeps*.

UROCHLOA HELOPUS

Sugar-cane mosaic, Storey, South Africa, 1924.

Streak, Storey, South Africa, 1924, N.

ZEAE MAYS

Mosaic, Lyon, Hawaii, 1914, N. Proved to be same as sugar-cane mosaic, Kunkel (1927) reported mosaic of corn in Hawaii different from mosaic of sugar-cane and from mosaic of corn

in Southern U. S. He found that *Peregrinus maidis* from North Carolina could not transmit sugar-cane mosaic to corn in the U. S. but that *P. maidis* of Hawaii did transmit the disease. Brandes (1920) reported a mosaic of corn from Puerto Rico which was observed first in 1919. It was transmitted by *A. maidis*. Rosen collected mosaic of corn in Arkansas in 1921. Elmer (1925) reported inoculation from *S. officinarum*.

Streak, Storey, South Africa, 1924, I by *C. mbila*.

Stripe, Stahl, Cuba, 1927, N.

Celery mosaic 1, Wellman, Florida, 1934, I.

ZOYSIA JAPONICA

Stripe, Kuribayashi, Japan 1931, N.

HYDRANGEAE

HYDRANGEA PANICULATA var. GRANDIFLORA

Chlorosis, Clinton, Connecticut, 1919, N.

HYDROPHYLLACEAE

NEMOPHILA sp.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis* and back.

NEMOPHILA MACULATA

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

PHACELIA CAMPANULARIA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

PHACELIA CONGESTA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

PHACELIA GRANDIFLORA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

PHACELIA PARRYI

Tobacco mosaic, Grant, Wisconsin, 1934, I.

PHACELIA RAMOSISSIMA

Curly top of sugar beet, Severin, California, 1934, N.

PHACELIA TENACETIFOLIA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Celery virus 1, Wellman, Florida, 1934, I.

PHACELIA VISCIDA

Aster yellows, Kunkel, N. Y. 1931, by *C. sexnotata*.

PHACELIA WHITLAVIA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Celery virus, 1, Wellman, Florida, 1934, I.

IRIDACEAE

CROCUS VERNUS

Mosaic, Fukushi, Japan, 1931, N.

GLADIOLUS sp

Mosaic & dwarf, Dodsall, Minnesota, 1928, I. Observed first in 1925.

GLADIOLUS GRANDAVENSIS

Mosaic, Fukushi, Japan, 1931, I.

IRIS HISPANICA

Mosaic, Atanasoff, Bulgaria, 1928.

IRIS PUMILA

Mosaic, Fukushi, Japan, 1931, N.

IRIS TECTORUM

Mosaic, Fukushi, Japan, 1931, N.

NERINE SARIENSIS

Mosaic, Atanasoff, Bulgaria, 1928.

LABIATAE

AGASTACHE SCROPHULARIAEFOLIA

Mosaic, Gardner, Indiana, 1923, N.

BRUNELLA (PRUNELLA) VULGARIS

Mosaic, Liro, Finland, 1930, N.

DRACOCEPHALUM RUYSCHIANA

Aster yellows, Kunkel, N. Y. 1931, I.

GLECHOMA HEREDRACA

Mosaic, Verplancke, Belgium, 1932, I.

LAMIUM MACULATUM

Mosaic, Verplancke, Belgium, 1932, I.

LAVENDER sp.

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

LEONURUS CARDIACA

Mosaic, Gardner, Indiana, 1923, I.

MARRUBIUM VULGARE

Delphinium mosaic, Heald, Washington, 1934, I. Dwarfing.

Delphinium stunt, Burnett, Washington, 1934, I.

MENTHA AQUATICA

Mosaic, Verplancke, Belgium, 1932, I.

NEPETA CATARIA

Mosaic, Elmer, Iowa, 1922, N. Muncie (1922) I from cucurbit mosaic.

PHYSOSTEGIA VIRGINICA

Aster yellows, Kunkel, N. Y. 1931, I by *C. saxnotata*.

PRUNELLA. See BRUNELLA

SALVIA sp.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, California 1934, I.

SALVIA SPLENDENS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I, from sugar beet by *E. tenellus*.

SATUREIA HORTENSIS

Aster yellows, Kunkel, N. Y. 1926, I from *C. Chinensis*.

STACHYS SYLVATICA

Mosaic, Verplancke, Belgium, 1932, I.

LAURACEAE

PERSEA PERSEA

Mosaic, No data.

Sun blotch, Parker & Horne, California, 1930, N. Fawcett (1930) reported having seen this disease in Palestine on trees said to have come from California.

LEGMINOSACEAE

ANTHYLLIS VULNERARIA

Mosaic, Merkel, Germany, 1929, N.

ARACHIS HYPOGAEA

Mosaic, McClintock, Virginia, 1917, N.

Rosette, Storey & Bottomley, South Africa, 1928, I. In 1926 an anonymous writer expressed the opinion that this was the same as East African "Krauzel-Krankheit" of Zimmermann (1907-1913) and the Java "Kruzieliekte" of Rutgers (1913). It may be the same as "bunching" and "clumping" of West Africa and India. It may be the same as rosette reported by Bunting (1917) in West Africa. Hayes (1932) reported three types. Sudaranaman (1928) reported a rosette from India similar to that of South Africa. Trochain (1931) reported "leprosy" from Senegal which appears to be the same as rosette.

CANAVALIA GLADIATA

Mosaic, Nelson, Michigan, 1933.

CICER ARIETUM

Curly top of sugar beet, Severin & Henderson, California, 1928.
I from sugar beet.

CROTALARIA JUNCEA

Mosaic, Fukushi, Japan, 1927, N.

CROTALARIA STRIATA

Mosaic, Cook, Puerto Rico, 1931, N.

DOLICHUS BIFLORUS

Mosaic, Uppal, India, 1931, N.

DOLICHOS LABLAB

Mosaic, Uppal, India, 1931, N.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

GLYCINE SOJA

Mosaic, Fukushi, Japan, 1929, N.

LABURNUM sp.

Chlorosis, Baur, Germany, 1907, N.

LABURNUM VULGARE AUREUS

Chlorosis, Baur, Germany, 1907, N.

LABURNUM VULGARE CHRYSOPHYLLUM

Chlorosis, Baur, Germany, 1907, N.

LOTUS AMERICANUS

Curly top of sugar beet, Severin & Henderson, California, 1928, N.

LOTUS STRIGOSUS

Curly top of sugar beet, Severin, California, 1934, N.

LUPINUS sp.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.
Sore-shin, Neill, New Zealand, 1934, N.

LUPINUS ALBUS

Mosaic, Soriano, Argentina, 1932, N.

LUPINUS ANGUSTIFOLIUS

Sore shin, Neill, New Zealand, 1934, N.

LUPINUS PILOSUS

Mosaic, Soriano, Argentina, 1932, N.

MALCONIA MARITIMA

Spotted wilt, K. M. Smith, England, 1932, I.

MEDICAGO ARABICA

Mosaic, Elliott, Arkansas, 1921, I.

MEDICAGO HISPIDA

Curly top of sugar beet, Carsner, California, 1919, N.

MEDICAGO LUPULINA

Mosaic, Dickson, Canada, 1922, I from *T. pratense*.

MEDICAGO SATIVA

- Mosaic, Weimer, California, 1931, NI. Had been reported previously but not proved to be a virus.
Curly top of sugar beet, Severin, California, 1928, I by *E. tenellus*.

MELILOTUS, sp.

- McLarty, Canada (1920) (suspected). Güssow reports seeing the disease in 1912 and Elliott as seeing it in 1917.

MELILOTUS ALBA

- Mosaic, Dickson, Canada, 1922, I from *T. pratense*.
Curly top of sugar beet, Severin & Henderson, California, 1928, I.

MELILOTUS INDICA

- Curly top of sugar beet, Carsner, California, 1919, I from sugar beet.

MELILOTUS OFFICINALIS

- Mosaic, Dickson, Canada, 1922, from *T. pratense*.
Ring spot of tobacco, Wingard, Virginia, 1928, NI from *N. tabacum*.

NASTURTIUM OFFICINALE

- Mosaic, Pinkhof, Czechoslovakia, 1930.

PACHYRHISUS ANGULATUS

- Mosaic, Fajardo & Marañon, Philippine Islands, 1932, N.

PACHYRHISUS EROSUS

- Mosaic, Fajardo & Marañon, Philippine Islands, 1932, I.

PHASEOLUS ACONITIFOLIUS

- Mosaic, Nelson, Michigan, 1932.

PHASEOLUS CUTIFOLIUS var. LATIFOLIUS

- Mosaic, Nelson, Michigan, 1932.

PHASEOLUS ANGULARIS

- Mosaic, Matsumoto, Japan, 1922, N. (Nelson, Michigan, 1932)).

PHASEOLUS AUREUS

- Mosaic, Nelson, Michigan, 1932.

PHASEOLUS CALCARATUS

- Mosaic, Nelson, Michigan, 1932.

PHASEOLUS COCCINEUS

Mosaic, Nelson, Michigan, 1932.

PHASEOLUS LIMENSIS

Mosaic, Nelson, Michigan, 1932.

PHASEOLUS LUNATUS

Mosaic, Nelson, Michigan, 1932.

Curly top of sugar beet, Severin. California, 1928, N.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

PHASEOLUS MUNGO

Mosaic, Nelson, Michigan, 1932.

PHASEOLUS VULGARIS

Mosaic, N. Y., 1914. N by Stewart & Reddick, 1917, by McClintock, Virginia, 1917. Transmitted from *Melilotus alba*, *M. officinalis*, *Trifolium repens* and *T. Hybridum* to bean in 1933. Transmitted from *Medicago sativum*, *Pisum sativum* and *Lathyrus odoratus* by Zaumeyer & Wade. Clinton reported a chlorosis in 1908. Pierce (1934) successfully inoculated with bean virus 1, yellow or bean virus 2 and alfalfa virus 2.

Tobacco mosaic, Price, New York, 1931, I from *N. tabacum*. In 1934 he reported transmission to many varieties.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Curly top of sugar beet, Carsner, California, 1926, N. Transmitted by inoculation by Severin & Henderson, in 1928.

Ring spot of tobacco, Wingard, Virginia, 1926, I. from *N. tabacum*.

Mosaic, McClintock, Virginia, 1917, I from *A. hypogea*.

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

PHASEOLUS VULGARIS HUMILIS

Mosaic, Nelson, Michigan, 1929.

PISUM SATIVUM

Streak, Linford, Hawaii, 1931. Appears to be same as pineapple yellow spot and disease of *Emilia sagittata*.

PSORALES LITUMINOSA

Mosaic, McKinney, Canary Islands, 1928, N.

SOJA MAX

Mosaic, Clinton, Connecticut, 1915, N. Transmitted from *Cucurbita moschata*, *Solanum melongena* and *Vigna sinensis*, by Elmer, 1922.

STIZOLOBIUM DEERINGIANUM

Mosaic, Gardner, Indiana, 1923, N.

STROPHASTYLES BELVALA

Mosaic, Gardner, Indiana, 1923, N.

TRIFOLIUM ARVENSIS

Virus disease. Gardner, Indiana, 1927, N.

TRIFOLIUM HYBRIDUM

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

Mosaic, Kawai, Japan, 1931.

TRIFOLIUM INCARNATUM

Mosaic, Canada, 1922, I from *T. pratense*.

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

TRIFOLIUM PRATENSE

Mosaic, Elliott, Arkansas, 1921, N.

Curly top of sugar beet. Severin & Henderson, California, I.
Yellow ring spot, Johnson, Kentucky, 1933, N. Probably same as yellow ring spot of tobacco.

TRIFOLIUM PRATENSE PERENNE

Curly top of sugar beet, Severin & Henderson, California, 1928, I.

TRIFOLIUM REPENS

Curly top of sugar beet, Severin, California, 1928, I.

TRIFOLIUM RESUPINATUM

Virus disease, Gardner, Indiana, 1927, N.

TRIFOLIUM SUBTERRANEUM

Virus disease, Gardner, Indiana, 1927, N.

VICIA ATROPURPUREA

Curly top of sugar beet, Severin, California, 1928, NI.

VICIA FABA

Mosaic, Nelson, Michigan, 1932.

Curly top of sugar beet, Severin & Henderson, California, 1928, NI.

Spotted wilt of tomato, Green, England, 1935.

Celery virus 1, Wellman, Florida, 1934, I.

VICIA SATIVA

Curly top of sugar beet, Severin & Henderson, California, 1928, NI.

VICIA VILLOSA

Curly top of sugar beet, Severin & Henderson, California, 1928, NI.

VIGNA CATJANG

Mosaic, Elmer, Iowa, 1922, I. from *Solanum* sp.

VIGNA SESQUIPEDALIS

Mosaic, Gardner, Indiana, 1925.

VIGNA SINENSIS

Mosaic, Elmer, Iowa, 1924, I From *C. sativus*, *Soja max* & *Solanum melongena*. (Matsumoto, Japan, 1922).

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum* and back.

Curly top of sugar beet, Severin & Henderson, California, 1927, NI.

LILIACEAE

ALLIUM sp.

Yellow dwarf, Melhus, Iowa, 1927. This disease is recorded in the earlier literature and is probably the same as reported by Clinton of Connecticut (1906) as brittle.

ALLIUM CEPA

Mosaic, Hori, Japan, 1929, N.

Yellowing or Rotzkrankheit, Müller, Germany, 1930, N.

Virus disease, Blattny, Czechoslovakia, 1931.

Celery virus 1, Wellman, Florida, 1935, I.

ALLIUM FISTULOSUM

Mosaic, Tochinai & Fukushi, Japan, 1931, N.

ALLIUM MOLY

Mosaic, Atanasoff, Bulgaria, 1928.

ALLIUM NEOPOLITANUM

Mosaic, Atanasoff, Bulgaria, 1928.

ALLIUM SATIVUM

Virus disease, Blattny, Czechoslovakia, 1930. Causes a dwarfing and yellowing.

CONVALLARIA MAJALIS

Mosaic, Blattny, Czechoslovakia, 1929, N.

FRITILLARIA CAMTSCHATENSIS.

Fukushi, Japan, 1929. N.

HYACINTHUS sp.

Appears to have been found in U. S. as early as 1919. The compiler did not find any definite data.

HYACINTHUS ORIENTALIS

Mosaic, Tochinai & Fukushi, Japan, 1931, N.

LILIUM AURANTIUM

Mosaic, Woods, U. S. 1897, N. Cause not known at that time but Gutterman reported mosaic in 1918, Woods reported Bermuda lily disease on *L. harrisii*, *L. aurantium*, *L. candidum*, all of which were probably the disease now known as mosaic. This disease is supposed to have come from Japan but the first report from that country was by Fukushi, 1929.

Crooked neck, Ogilvie, 1930, N. May be same as mosaic.

Celery virus, 1, Wellman, Florida, 1935, I.

LILIUM CROCEUM

Mosaic, Cotton, England, 1933, N. Mild form.

LILIUM DAURICUM

Mosaic, Fukushi, Japan, 1930, N.

LILIUM FORMOSUM

Mosaic, Ogilvie, 1928, N. He believes that the disease appeared in Bermuda about 1893.

LILIUM GIGANTEUM

Yellow flat, Stout, England, 1930, N.

LILIUM HARRISII (-L. LONGIFLORUM)

Mosaic. The first record of this disease on any of these lilies appears to have been by Stewart of New York, in 1896.

LILIUM HUMBOLTHI

Mosaic, Cotton, England, 1933, N. Mild form.

LILIUM LONGIFLORUM

Mosaic, Ogilvie, England, 1927. He said this disease occurred on *L. giganteum*, *L. formosum*, *L. harrisii* and on the following varieties of *L. longiflorum*, viz. *tapesuna*, *insulare* and *eximium*. Reported from Japan by Fukushi in 1929.

Yellow flat, Ogilvie, Bermuda, 1928, N.

Stunt, Pape, Germany, 1934, N.

Celery virus 1, Wellman, Florida, 1935, I.

LILIUM MACULATUM

Mosaic, Fukushi, Japan, 1931, N.

LILIUM MAKINOI

Mosaic, Kawai, Japan, 1931, N.

LILIUM MAXIMOWICZII

Mosaic, Fukushi, Japan, 1929, N.

LILIUM MARTAGON

Dwarfing, Blattny, Czechoslovakia, 1930, N.

LILIUM PHILIPPINENSE var. **FORMOSANUM**

Mosaic, Fukushi, & Kawai, Japan, 1932, N.

LILIUM PLATYPHYLLUM

Mosaic, Fukushi, Japan, 1931, N.

LILIUM SPECIOSUM var. **TAMETOMO**

Mosaic, Fukushi, Japan, 1931, N.

LILIUM SUPERBUM

Mosaic, Gutterman, N. Y. 1930, N.

LILIUM TIGRINUM

Mosaic, Fukushi, Japan, 1929, N.

MUSCARI BOTRYOIDES

Atanasoff, Bulgaria, 1928.

Mosaic, Fukushi, Japan, 1931.

MUSCARI COMOSUM & **M. C. COMPACTUM**

Mosaic, Atanasoff, Bulgaria, 1928.

TULIPA sp.

Mosaic or breaking. The first definite record of this disease appears to be that of Carolus Clusius (Charles de l'Ecluse or l'Escluse) in 1576. There are many later records.

Full breaking, self breaking and clotting, McKenny Hughes, England, 1934. Full breaking is the result of two viruses.

TULIPA GESNERIANA

Mosaic, known throughout Japan.

LIMNANTHACEAE

LIMNANTHES DOUGLASII

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

LINACEAE

LINUM USITATISSIMUM

Curly top of sugar beet, Severin, California, 1929, I.

LOASACEAE

BLUMENBACHIA HIERONYMI

Aster yellows, Kunkel, N. Y. 1931, I by *E. tenellus*.

CAJOPHORA LATERITA

Aster yellows, Kunkel, N. Y. 1931, I by *E. tenellus*.

LOBELIACEAE

LOBELIA CARDINALIS

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

LOBELIA ERINUS

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

LYTHRACEAE

LAGERSTROEMIA sp.

Rosette, Brooks, Gambia, 1933, N. May be same as on *A. hypogea*.

MALVACEAE

ALTHAEA OFFINALIS

Variations, Lindemuth, Germany, 1902. Same as on *Abutilon*. Infectious chlorosis, Hertsch, Germany, 1927.

ALTHAEA ROSEA

Cotton leaf curl, Kirkpatrick, Sudan, 1931.

Variations, Lindemuth, Germany, 1902. Same as on *Abutilon*.

Leaf curl, Mason & Lambert, Sudan, 1932, N. Same as on cotton.

Mosaic, Cook, Puerto Rico, 1935, N. First record and first publication.

ABUTILON AVICENNAE

Mosaic, Tropova, U.S.S.R. 1933, N. These plants growing near tobacco developed reticulate mosaic similar to that on tobacco.

ABUTILON DARWINI

Infectious mosaic, Hertsch, Germany, 1927.

ABUTILON HIRTUM

Mosaic, Cook, Puerto Rico, 1931, N. First record.

ABUTILON INDICUM

Infectious chlorosis, Hertsch, Germany, 1927.

ABUTILON MULLERI

Variegations, Kuer, N. Y. 1933.

ABUTILON REGUELI

Variegations, Keur, N. Y. 1933.

ABUTILON SELLOVIANUM

Variegations, Lindemuth, Germany, 1870.

Infectious chlorosis, Hertsch, Germany, 1927.

ABUTILON STRIATUM-THOMPSONII

Mosaic, Introduced into Europe from East Indies and attracted attention in 1868.

ABUTILON THEOPHRASTI

Mosaic, Elmer, Iowa, 1925, N.

ANODA HASTATA

Variegations, Lindemuth, Germany, 1902.

GOSSYPIUM sp.

Brachysum, O. F. Cook, U. S. 1915.

Cyrtosis, O. F. Cook, China & India.

Stenosis, O. F. Cook, Haiti, 1922.

Acromania, O. F. Cook, U. S. 1923.

Tomatosis, O. F. Cook, U. S. 1913.

Hybosis, O. F. Cook, U. S. 1924.

NOTE: None of these diseases by O. F. Cook, have been definitely proven to be due to a virus.

Leaf curl or crinkle, Mason & Lambert, Sudan, 1923-24, N. In

1934, Massey & Andrews reported that it could be transmitted by grafting.

Mosaic, Kulkarni, India, 1924, N.

Virus disease, Afzal, India, 1934, N. Very similar to O. F. Cook's stenosis.

GOSSYPIUM HIRSUTUM

Leaf curl, Jones & Mason, Sudan, 1924, N.

GOSSYPIUM PERUVIANUM

Leaf curl, Farquarson, Nigeria, 1913, N.

GOSSYPIUM VITICOLUM

Leaf curl, Farquarson, Nigeria, 1913, N. This disease is said to attack several weeds in the Sudan.

HIBISCUS CALYGINUS

Mosaic. McKinney, Gold Coast, 1929, N.

HIBISCUS CANNABINUS

Cotton leaf curl, Kirkpatrick, South Africa, 1931, I by *Bemisia fascialis*.

Virus disease? Lotoff, U.S.S.R., 1933.

HIBISCUS ESCULENTUS

Mosaic, Kulkarni India, 1924, N. Park (1929) of Ceylon reported a mosaic in Ceylon attacking 50 per cent of plants. Also attacking *Solanum melongena*.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Curly top of sugar beet, Severin, California, 1929, I.

Leaf crinkle, Kirkpatrick, Sudan, 1930, N.

HIBISCUS ROSA-SINENSIS

Virus disease, U. S. 1926, N. No data.

KITAIBELIA VITIFOLIA

Variegation, Lindemuth, Germany, 1902.

LAVATERA ARBOREA

Variegation, Lindemuth, Germany, 1902.

Chlorosis, Hertsch, Germany, 1927.

LAVATERA TRIMESTRIS

Curly top of sugar beet, Freitag, & Severin, California, 1933, I from sugar beet by *E. tenellus*.

MALVA CRISPA

Infectious chlorosis, Hertsch, Germany, 1927.

MALVA BOREALIS

Infectious chlorosis, Hertsch, Germany, 1927.

MALVA MAURITIANA

Variation, Lindemuth, Germany, 1902.

MALVA PARVIFLORA

Curly top of sugar beet, Carsner, California, 1919. From sugar beet.

MALVA ROTUNDIFOLIA

Curly top of sugar beet, Severin, California, 1929. NI.

MALVA SYLVESTRIS

Mosaic, Verplancke, Belgium, 1932, I.

MALVA VERTICILLATA

Variation, Lindemuth, Germany, 1902.

MALVASTRUM CAPENSE

Variation, Lindemuth, Germany, 1902.

MODIOLA CAROLINIANA

Curly top of sugar beet, Severin, California, 1934. N.

PALAVA MALVAEFOLIA

Variation. Lindemuth, Germany, 1902.

SIDA CARPINIFOLIA

Mosaic, Cook, Puerto Rico, 1931, N.

SIDA NAPAEA

Variation. Lindemuth, Germany, 1902.
Infectious chlorosis, Hertsch, Germany, 1897.

SIDA NAPAEA RHOMBIFOLIA

Mosaic, Kunkel, Florida, 1930, N.

SIDA SPINOSA

Leaf curl, Mason & Lambert, Sudan, 1932, N. Same as on cotton.

MARTYNIACEAE**MARTYNIA sp.**

Aster yellows, Kunkel, N. Y. 1926. from *C. chinensis*.
Spotted wilt of tomato, Gardner & Whipple, California, 1934, I.

MARTYNIA LOUISIANA

Mosaic, Doolittle, Wisconsin, 1921, I from *C. sativus*. Doolittle & Walker, (1923) inoculated from *Asclepias syriaca*, Elmer (1924) from *N. tabacum*, Fernow (1925) from *N. tabacum* *N. glutinosa*, Kunkel (1926) from *C. chinensis*.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

MORACEAE

FICUS sp.

Mosaic, California, 1933, *N. Ficus palmata* is immune. All others are susceptible. Swingle (1928) reported a mottling on cuttings from Biskra (Algeria). Hodgson (1931) reported mosaic on figs in Tunis.

FLEURY PODOCARPA

Mosaic, McKinney, West Africa, 1929.

HUMULUS sp.

Chlorosis, Salmon & Ware, 1930, N. Known for many years. Nettlehead, nettly and sprinkly known in England for many years.

Krausel or Kadervast, Blattny, Czechoslovakia, 1930, N. Appears to be distinct from nettlehead.

HUMULUS JAPONICUS

Aster yellows. Kunkel, N. Y. 1931. I by *C. seznottata*.

Curly top of sugar beet, Freitag & Severin, California, 1933. From sugar beet by *E. tenellus*.

HUMULUS LUPULUS

Mosaic, known in England for many years, Aucuba type, mottle type and hereditary sterility reported in Czechoslovakia by Blattny in 1927.

Chlorosis, Salmon & Ware, England, 1932.

MORUS sp.

Chlorosis, Suzuki, Japan, 1900, N.

Mottling, Cook, Puerto Rico, 1931, N. The writer's attention was called to this disease by Francisco Sein Jr.

MUSACEAE

MUSA sp.

Bunchy top. Goddard, Australia, 1925, N. This disease appears to have been known in Fiji as early as 1885, in Egypt in

1900 and in Australia and Ceylon, in 1913. Stevenson reports that other hosts are *Canna* sp. and *Saccharum officinarum*. A mosaic disease has been reported on banana.

Virus disease, Magee, Australia, 1930, NI. Carried by *Pentalonia nigronervosa*.

MUSA CAVENDISHII

Celery virus 1, Wellman, Florida, 1935, N.

MUSA PARADISICA

Bunchy top, Park, Ceylon, 1930, NI.

MUSA SAPIENTUM

Celery virus 1, Wellman, Florida, 1935, N.

NYCTAGINACEAE

ABRONIA UMBRELLATA var. **GRANDIFLORA**

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

BOUGAINVILLEA SPECTABILIS

Virus disease, G. H. Martin, Jr., U. S. 1922.

MIRABILIS JALAPA

Curly top of sugar beet, Severin & Freitag, California, 1933, NI. From sugar beet by *E. tenellus*.

ONAGRACEAE

CLARKIA ELEGANS

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

FUCHSIA sp.

Spotted wilt of tomato, Holmes Smith, England.

FUCHSIA GRACILIS

Mosaic, McKinney, Canary Islands, 1929, N.

GODETIA GRANDIFLORA

California aster yellows, Severin & Freitag, California, 1934, N.

Mosaic, Verplancke, Belgium, 1932, I.

OENOTHERA BIENNIS

Mosaic, Verplancke, Belgium, 1932, I.

Yellows, Verplancke, Belgium, 1932, I.

PAPAVERACEAE

CHELIDONEUM JANUS

Mosaic, Verplancke, Belgium, 1932, I.

ESCHLOLTZIA CALIFORNICA

Aster yellows, Kunkel, N. Y. 1926, I From *C. chinensis*.

California aster yellows, Severin & Freitag, California, 1934, I.

PAPAVER sp.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, California, 1933, I.

PAPAVER NUDICAULE

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Spotted wilt of tomato, Pittman, Australia, 1934, N.

PAPAVER ORIENTALE

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

PAPAYACEAE

CARICA PAPAYA

Curly top or curly leaf, Ciferri, Dominican Republic, 1930, N.

Also in Puerto Rico.

PASSIFLORACEAE

PASSIFLORA sp.

Virus disease, Bijl, South Africa, 1931, N.

PASSIFLORA EDULIS

Woodiness or bullet disease, Noble, Australia, 1928. Known for many years.

PEDALIACEAE

SESAMUM RADIATUM

Virus disease, Deighton, Sierra Leona, 1932, N.

PHYTOLACCACEAE

PHYTOLACCA DECANDRA

Mosaic, Woods, U. S., 1902, N.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Ring spot of tobacco, Priode, N. Y., 1928, I from *N. tabacum*.

Coarse etch, Johnson, Kentucky, 1930, I. Also attacks several Solanaceae.

- Cucumber mosaic (types 1, 2, 3). Johnson, Kentucky, 1930, I.
 (Also type 3 + veinbanding.)
 Healthy potato virus, Johnson, Kentucky, 1930, I.
 Celery, virus 1, Wellman, Florida, 1935, I.

PHYTOLACCA RIGIDA

- Celery virus 1, Wellman, Florida, 1935, I. Symptomless.

PLANTAGINACEAE

PLANTAGO ALPINA

- Aster yellows, Kunkel, N. Y. 1931, I by *E. tenellus*.

PLANTAGO ERECTA

- Curly top of sugar beet, Severin, California, 1934, NI.

PLANTAGO FUSCESCENS

- Aster yellows, Kunkel, N. Y. 1931, I by *E. tenellus*.

PLANTAGO LANCEOLATA

- Mosaic, Kunkel, N. Y. 1928, I. by *C. sexnotata*.

PLANTAGO MAJOR

- Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*, and back.
 California aster yellows, Severin, California 1929, N.
 Spotted wilt of tomato, K. M. Smith, England, 1932.
 Mosaic, Johnson, Kentucky, 1930. It is not cucumber mosaic.
 Yellows, Verplancke, Belgium, 1932, I.
 Curly top of sugar beet, Severin, California, 1934, I.

PLANTAGO PSYLLIUM

- Aster yellows, Kunkel, N. Y., 1931, I. by *C. sexnotata*.

PLUMBAGINACEAE

ARMERIA ALPINA

- Aster yellows, Kunkel, N. Y., 1931, I. by *C. sexnotata*.

LIMONIUM SINUATUM *

- Curly top of sugar beet, Freitag & Severin, California, 1933, I.
 From sugar beet, by *E. tenellus*.

POLEMONIACEAE

CABAEA SCANDENS

- Curly top of sugar beet, Freitag & Severin, California, 1933. I
 from sugar beet, by *E. tenellus*.

GILIA CAPITATA

Celery virus 1, Wellman, Florida, 1933, I.

GILIA DENSIFLORA

Aster yellows, Kunkel, N. Y., 1931, I. by *C. sexnotata*.

GILIA TRICOLOR

Aster yellows, Kunkel, N. Y. 1925, I by *C. sexnotata*.

PHLOX DRUMMONDII

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Tobacco mosaic, Grant, Wisconsin, 1934.

Curly top of sugar beet, Freitag, & Severin, California, 1933, I.

From sugar beet, by *E. tenellus*.

Celery virus 1, Wellman, Florida, 1935, I. Symptomless.

PHLOX PANICULATA

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.

POLEMONIUM COERULUM

Aster yellows, Kunkel, N. Y., 1931, I. by *C. sexnotata*.

POLYGONACEAE

FAGOPYRUM ESCULENTUM

Curly top of sugar beet, Carsner, California, 1919, I from sugar beet.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Celery virus 1, Wellman, Florida, 1935, I.

Tobacco, mosaic, Grant, Wisconsin, 1934, I.

POLYGONUM AMPHIBIUM HARTWRIGHT

Curly top of sugar beet, Severin, California, 1934, NI.

POLYGONUM AVICULARE

Curly top of sugar beet, Carsner, California, 1919, I.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

POLYGONUM LAPATHIFOLIUM

Curly top of sugar beet, Severin, California, 1934, NI.

POLYGONUM MUHLENBERGII

Curly top of sugar beet, Severin, California, 1934, NI.

POLYGONUM PERSICARIA

Mosaic, Verplancke, Belgium, 1932, I.

Yellows, Verplancke, Belgium, 1932, I.

Curly top of sugar beet, Severin, California, 1934, NI.

RHEUM RHAPONTICUM

Mosaic, Dickson, Canada, 1925, N.

Curly top of sugar beet, Severin, California, 1929, I.

RUMEX ACETOSA

Mosaic, Verplancke, Belgium, 1932, I.

Yellows, Verplancke, Belgium, 1932, I.

RUMEX CRISPUS

Curly top of sugar beet, Carsner, California, 1925. Very resistant.

Leaf deforming mosaic, Böning, Germany, 1930, NI. Attacks beets and spinach.

RUMEX LANCEOLATA

Chlorosis, Grainger & Cockerhan, England, 1930, N.

RUMEX OBTUSIFOLIUS

Mosaic, Fernow, N. Y. 1925, N.

Infectious chlorosis, Green, England, 1930, N.

Leaf deforming mosaic, Böning, Germany, 1930.

RUMEX SCUTATUS

Curly top of sugar beet, Severin, California, 1929, I.

PORTULACACEAE

CALANDRINA GRANDIFLORA

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

PORTULACA sp.

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

PORTULACA GRANDIFLORA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

PORTULACA OLERACEA

Curly top of sugar beet, Freitag & Severin, California, 1934, I.

PRIMULACEAE

ANAGALIS ARVENSIS

Curly top of sugar beet, Severin, California, 1934, I.

ANAGALIS LINIFOLIA

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

PRIMULA sp.

Spotted wilt of tomato, Gardner, Tompkins, and Whipple, California, 1935, I.

PRIMULA DENTICULATA

Mosaic, Fukushi & Kawai. Japan, 1932, N.

PRIMULA ELATOR

Aster yellows, Kunkel, N. Y. 1926. I from *C. chinensis*.

PRIMULA MALACOIDES

Spotted wilt of tomato, Ogilvie, England, 1935.

PRIMULA OBCONIA

Mosaic, Hayashi, Japan, 1928, N.

Virus disease, K. M. Smith, England, 1935, N. Transmitted to *N. glutinosa*, *N. lansdorphia* & *D. stramonium*.

PRIMULA POLIANTHA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.
From sugar beet by *E. tenellus*.

PRIMULA SAXATALIS

Curly top of sugar beet, Freitag & Severin, California, 1933.
I, from sugar beet by *E. tenellus*.

PRIMULA SINENSIS

Virus disease, K. M. Smith, England, 1935, I from *P. obconia*.

PRIMULA VERIS

Curly top of sugar beet, Freitag & Severin, California, 1933, I.
From sugar beet, by *E. tenellus*.

RANUNCULACEAE

ADONIS AESTIVALIS

Aster yellows, Kunkel, N. Y., 1931, I. by *C. sexnotata*.

ANEMONE CORONARIA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.
From sugar beet, by *E. tenellus*.

ANEMONE NEMEROSA, A. RANUNCULOIDES & A. TRIFOLIA

Alloiophyllly, Klebahn, Germany, 1926. N. Contain flagellate bodies which were figured by the author in 1897. This disease resembles those caused by is viruses.

AGUILEGIA CANADENSIS

Mosaic, Elmer, Iowa, 1924, N.

AGUILEGIA COERULEA

Mosaic, Elmer, Iowa, I, from *A. canadensis*.

AGUILEGIA FLABELLATA

Mosaic, Ito, Japan, 1931, N.

AGUILEGIA VULGARIS

Spotted wilt of tomato, Pittman, Australia, 1934, N.

DELPHINUM sp.

Mosaic, Valleau, Kentucky, 1932, N. Also attacks tobacco.

Malformation, Gardner, Indiana, 1927.

Virus disease, Valleau, Kentucky, 1932.

Witches' broom, Hungerford, Idaho, 1933, N. Had been under observation several years.

Dwarf, Heald, Washington, 1934, N.

Stunt, Burnett, Washington, 1934, N.

Spotted wilt of tomato, Gardner, Tompkins, & Whipple, California, 1935, I.

DELPHINUM CONSOLIDA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Celery virus, 1, Wellman, Florida, 1935, I.

DELPHINIUM NUDICAULE

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

From sugar beet, by *E. tenellus*.

NIGELLA DAMSCENA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

From sugar beet, by *E. tenellus*.

PAEONIA sp.

Mosaic, Whetzel, Massachusetts 1915, N.

PAEONIA ALBIFLORA

Infectious chlorosis, Togashi, Japan, 1931.

RANUNCULUS ANEMONE

Spotted wilt of tomato, Pittman, Australia, 1934, N.

RANUNCULUS ASIATICUS

California aster yellows, Severin & Freitag, California, 1934, N.

RESEDACEAE

RESEDA ODORATA

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

ROSACEAE

FRAGARIA sp.

Blight, Horne, California, 1922, N.

Yellows or xanthosis, Horne, California, 1922, N.

Mosaic, Berkeley, Canada, 1928, N.

Dwarf, Plakidas, Louisiana, 1928, N.

Crinkle, Zeller, & Vaughan, Pacific Coast, 1932.

Yellow edge, Harris, England, 1933, N.

Stunt, Chamberlain, New Zealand, 1934, N.

FRAGARIA COLLINA

Mosaic, Verplancke, Belgium, 1932, I.

Yellows, Verplancke, Belgium, 1932, I.

HOLODISCUS DISCOLOR

Witches' broom, Zeller, Oregon, 1930, N. Known as early as 1925.

PHYSOCARPUS CAPITATUS

Witches' broom, Zeller, Oregon, 1931, I, by *Aphis spiraeae*.

POTENTILLA MOSPELIENSIS

Aster yellows, Kunkel, N. Y. 1931, I by *C. saxnotata*.

PRUNUS sp.

Vitrosis, Rietseman, Ukraine, 1930, N. A disease of the cherry plum and peach. In cherry it is associated with mosaic.

Virus disease, Valleau, Kentucky, 1932. Transmitted by budding.

PRUNUS CHICASA

Rosette, E. F. Smith, Georgia, 1891, N.

PRUNUS DOMESTICA

Plum pox, Atanasoff, Bulgaria, 1932, N.

PRUNUS PERSICA

Yellows, U. S. 1791, N. According to E. F. Smith.

Little peach, E. F. Smith, Michigan, 1893, N.

- Phony peach, Neal, Georgia, 1920, N. Known for many years, before reported. Hutchins proved that it was transmissible.
Buckskin, Rawlins & Horne, California, 1931, NI.
Mosaic, Hutchins, Texas, 1932, N.
Red suture, Cation, Michigan, 1932, N. Known since, 1911.

PYRUS MALUS

- Mosaic, 1924, No data.
Infectious variegations, Bradford & Joley, Michigan, 1933, NI.

ROSA sp.

- Streak, Brierley, U. S., 1935, N.

ROSA MANETTI

- Chlorosis, Weiss & McWhorter, U. S., 1930, N.
Chlorosis, Nelson, Michigan, 1930, N.

ROSA MULTIFLORA

- White in New Jersey and Weiss & McWhorter in Oregon, 1930, NI. The first record was probably made by Norton of Maryland in 1909 but not recognized as a virus disease.

RUBUS sp.

- Mosaic, Detmer, Ohio, 1891, N. Appears to be the first record.
Leaf curl, Green, Minnesota, 1895, N. May have been a virus disease.
Yellows, or curl, Melchers, Ohio, 1914, N. May have been a mosaic.
Leaf curl, Zeller, Oregon, 1923, N.
Mosaic, Zeller, Oregon, 1923, N.
Dwarf of Loganberry, Oregon, 1925, N. Also occurs in Washington and California. Mentioned by Darrow in 1918.
Streak, Bennett, Michigan, 1927, N. May be same as reported by Wilcox in Ohio in 1922. Rankin has written to compiler "Streak as defined by Wilcox (Ohio) 1922 was divided in severe streak and mild streak."
Red raspberry mosaic, Bennett, Michigan, 1927, N. Also attacks blackberry and dewberry.
Mild raspberry mosaic, Michigan, 1927, N. Also attacks, blackberry and dewberry.
Yellow raspberry mosaic, Bennett, Michigan, 1927, N.
Dwarf of blackberry, Zeller, Oregon, 1927, N.
Speckel mosaic, Blattny, Czechoslovakia, 1927, N.
Leaf curl, alpha and beta types, severe streak, mild streak and leaf curl. Rankin, New York, 1931.

Red raspberry mosaic, yellow mosaic, and mild mosaic, Rankin
New York, 1931.

Fern leaf, witches' broom & dwarf, Zundel. Pennsylvania, 1931.

Mild streak and severe streak, Cooley, Ohio, 1932, N.

RUBUS OCCIDENTALIS

Mild streak, Cooley, Ohio, 1932, N.

RUBUS LEUCODERMIS

Mosaic, Zeller, Oregon, 1923, N.

RUBUS MACROPETALUS

Mosaic, Zeller, Oregon, 1923, N.

RUBUS PARVIFLORUS

Mosaic, Zeller, Oregon, 1923, N.

RUBUS STRIGOSUS

Mosaic, Bennett, Michigan, 1927.

SORBUS sp.

Chlorosis, Baur, Germany, 1907, N.

SPIRAEA DOUGLASSII, S. PRUNIFOLIA, S. THUNBERGII, and S. VANHOUTEI

Witches' broom, Zeller, Oregon, 1931. Same as on *Holodiscus*
discolor. I by *A. spiraea*.

RUBIACEAE

CEPHALANTHUS OCCIDENTALIS

A virus disease, Missouri, 1921, N. No data.

COFFEA sp.

Phloem necrosis, Stahel, Suriname, 1919, N. In 1930 he reported
the disease on *C. abeocutae*, *C. arabica*, *C. canephora*, *C.*
liberica, *C. robusta*, and *C. ugandae*.

RUTACEAE

CITRUS sp.

Infectious variegation, Trabut, 1913, N. Atanasoff believes this
to be the first record of a virus disease on citrus.

Psorosis, Fawcett, California, 1933, N. Known for many years
Atanasoff believes that the blight in Florida (Swingle &
Webber, 1896), "mal seco" of Sicilia (Savastano, 1921 and
Petri 1931), little leaf, leprosis, decorticosis, brown spot of
navel orange, peteca of lemon, endodermis or internal decline
of lemon, membranous stain, crinkle leaf, spot mosaic and
ring spot, are all due to viruses.

PTELEA sp.

Chlorosis, Baur, Germany, 1907, N.

SANTALACEAE**SANTALUM ALBUM**

Spike disease, McCarthy, India, 1918. First record. Infectious nature demonstrated by Coleman, 1917.

SAPINDACEAE**CARDIOSPERMUM HALICACABUM**

Curly top of sugar beet, Freitag & Severin, California, 1933, I. from sugar beet by *E. tenellus*.

DODONAEA VISCOSA

Spike disease, Sastri & Narayana, India, 1931, N. Known for 35 years or more.

SAPOTACEAE**CHRISOPHYLLUM CAINITO**

Rosette, Brooks, Gambia, 1932, N. May be same as on *A. hypogea*.

SAXIFRACACEAE**RIBES** sp.

Reversion has been known in England for many years. It is now believed to be a virus disease.

RIBES VULGARE

Chlorosis, Clinton, Connecticut, 1920, N.

SCITAMINACEAE see **MUSACEAE****SCROPHULARIACEAE****ALONSEA WARSCIEWICZI**

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

ANTIRRHINUM sp.

Virus disease, Gardner, Indiana, 1923, N.

Spotted wilt of tomato, Holmes Smith, England, 1934, N.

ANTIRRHINUM MAJUS

Ring spot of tobacco, Wingard, Virginia, 1928. I from *N. tabacum*.

Tobacco mosaic, Grant, Wisconsin, 1934, I.

Celery virus 1, Wellman, Florida, 1935, I.

CALCEOLARIA sp.

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.
Spotted wilt of tomato, Holmes Smith, England, 1934, N.

COLLINSIN BICOLOR

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

CYMBALARIA MURALIS

Curly top of sugar beet, Freitag & Severin, California, 1933.
I from sugar beet by *E. tenellus*.

DIGITARIA AMBIGUA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

DIGITALIS PURPUREA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

LINARIA CYMBALARIA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.
Tobacco mosaic, Grant, Wisconsin, 1934, I.

LINARIA MAROCCANA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

MAURANDIA LOPHOSPERMUM

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

MAURANDIA SCANDENS

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

MIMULUS LUTEUS

Aster yellows, Kunkel, N. Y., 1926, I from *C. chinensis*.
Curly top of sugar beet, Freitag & Severin, California, 1933, I.

NEMESIA sp.

Aster yellows, Kunkel, N. Y., 1926, from *C. chinensis*.

NEMESIA STRUMOSA

Curly top of sugar beet. Freitag & Severin, California, 1933.

PENSTEMON sp.

Spotted wilt of tomato, Holmes Smith, England, 1934, N.

PENSTEMON BARBATUS

Tobacco mosaic, Grant, Wisconsin, 1934, I.

SCROPHULARIA MARYLANDICA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

VERBASCUM HYBRIDUM

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

VERBASCUM THAPSUS

Tobacco mosaic, Grant, Wisconsin, 1934, I.

VERNONIA CINEREA

Krug or "Kroepoek", Thung, Java, 1934, N.

VERONICA PEREGRINA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

SOLANACEAE

ATROPA BELLADONA

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

BROWALLIA DEMISSA

Aster yellows, Kunkel, N. Y., 1931, I by *C. sexnotata*.

BROWALLIA SPECIOSA

Curly top of sugar beet, Freitag & Severin, California, 1933 I
from sugar beet, by *E. tenellus*.

CAPSICUM sp.

Mosaic, Allard, D. C., 1912, I, transmitted from *C. sativus* by
Doolittle (1920) from *Physalis longifolia*, by Gardner (1921),
from tobacco by E. M. Johnson, 1930.

Virus disease, Blodgett, N. Y., 1927, I from apparently healthy
potato.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

CAPSICUM ANNUUM

Mosaic, Transmitted from *C. sativus* by Doolittle (1920) and
from *Asclepias syriaca* and back by Doolittle & Walker (1923).

E. M. Johnson (1930) reported inoculation with 7 strains.

Mosaic, Blodgett, N. Y. 1927, I from apparently healthy potato.

Healthy potato virus + veinbanding, Johnson, Kentucky, 1930.

Potato mosaic, J. Henderson Smith, England, 1928, I from *L.*
esculentum.

Etch, etch +, and severe etch, Johnson, Kentucky, 1930.

Veinbanding, Johnson, Kentucky, 1930, I.

Cucumber mosaic (3 types) Johnson, Kentucky, 1930, Also type
3, and veinbanding virus.

Green & White tobacco mosaic, Johnson, Kentucky, 1930, N.

Leaf roll, Dykstra, U. S., 1930, I from potato.

Celery mosaic, Doolittle, Florida, 1931, N. Appears to be same as cucumber mosaic.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

Necrosis, van der Meer, Holland, 1932, I from apparently healthy potato.

Glass house streak, Ainsworth, England, 1933.

Celery virus 1, Wellman, Florida, 1934, I.

CAPSICUM ANNUUM var. GROSSUM

Mosaic, McKinney, Liberia & French Camaroon, 1929, N.

CAPSICUM FRUTESCENS

Curly top of sugar beet, Severin, California, 1929, NI.

Tobacco mosaic, Holmes, New York, 1932, I, from *N. tabacum*.

Celery virus 1, Wellman, Florida, 1935, I.

CYPHOMANDRA BETACEA

Mosaic, Fukushi, Japan, 1929, N.

DATURA sp.

Spotted wilt, Gardner & Whipple, California, 1934, I.

DATURA METELOIDES

Mosaic, Fernow, N. Y., 1925, I from *S. tuberosum*, *D. stramonium* and *N. glutinosum*.

Celery virus 1, Wellman, Florida, 1935, I, Symptomless.

DATURA STRAMONIUM

Allard, D. C. 1912, Inoculated from *N. tabacum*; *A. graveolens* and *N. glutinosum* by Elmer, 1925; from *N. tabacum*, *L. esculentum*, *N. physalodes*, *N. glutinosa*, *S. aculeatissimum*, *S. atropupureum*, *S. tuberosum* and *D. stramonium*.

Curly top of sugar beet, Severin, California, 1929, I.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Potato mosaic, J. Henderson Smith, England, 1928, I from *L. esculentum*.

Tobacco mosaic (6 strains), Johnson, Kentucky, 1930, I.

Etch, etch +, and severe etch, Johnson, Kentucky, 1930, I.

Veinbanding, Johnson, Kentucky, 1930, I. No symptoms.

Healthy potato mosaic, Johnson, Kentucky, 1930, I.

Cucumber mosaic, (3 types), Johnson, Kentucky, 1930, I. Also type 3 and veinbanding virus.

Crinkle A of potato, Salaman, England, 1930, I from *S. tuberosum*.

- Leaf roll, Dykstra, U. S. 1930, I, from potato.
- Spotted wilt of tomato, K. M. Smith, England, 1931, I.
- Krausel mosaic, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I.
- Mosaic, van der Meer, Holland, 1932, I from apparently healthy potato.
- Aucuba or yellow mosaic, Caldwell, England, 1932, N.
- Hy III, Hamilton, England, 1932, I.
- Necrotic virus diseases, Schultz & Raleigh, Maine, 1933, I from *S. tuberosum*.
- Necrotic lesions from tobacco mosaic, Holmes, New York, 1932.
- Obscure virus disease, Moore, South Africa, 1932. May be same as spotted wilt of tomato. Also attacks *N. tabacum*, two species of *Physalis* and *Nicandra physaloides*.
- Spotted wilt of tomato, Ainsworth, England, 1933, I.
- Glass house streak, Ainsworth, England, 1933.
- Kromnek or Kat River disease, Moore, South Africa, 1933.
- Yellow mottle mosaic, (virus 1.) Ainsworth, England, 1934, from *C. sativus*.
- Foliar necrosis (virus D), Bawden, England, 1934, I from *S. tuberosum*.
- Celery virus 1, Wellman, Florida, 1934, I, Symptomless.
- Spotted wilt of tomato, Gardner, & Whipple, California, 1934, N.
- Virus disease, K. M. Smith, England, 1935, I from *Primula obconica*.

DATURA TATULA

- Mosaic, Allard, D. C. 1914, I, from *N. tabacum*.
- Leaf roll, Dykstra, U. S. 1930, I from potato.
- Mosaic, Verplancke, Belgium, 1932, I.
- Yellows, Verplancke, Belgium, 1932, I.

DATURA QUERCIFOLIA

- Yellows, (or mosaic) Allard, D. C. 1914, I from *N. tabacum*.

HYOSCYAMUS NIGER

- Yellows, (or mosaic) Allard, D. C. 1914, I from *N. tabacum*.
- Potato mosaic, J. Henderson Smith, England, 1928, I from *L. esculentum*.
- Aster yellows, Kunkel, N. Y., 1931, I by *C. serotata*.
- Tomato mosaic, Schaffnit & Müller, Germany, 1931, I from *L. esculentum*.

- Krausel mosaic, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Streak of potato, Schaffnit & Müller, Germany, 1931, I.
- Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Mosaic, van der Meer, Holland, 1932, I from apparently healthy potato.
- Spotted wilt of tomato, K. M. Smith, England, 1932, I.
- Hy I, II, III, and IV, Hamilton, England, 1932.

LYCOPERSICON ESCULENTUM

- Winter blight or tomato streak, Bailey, N. Y. 1892, N. Also reported by Lodeman in 1892, and by Selby in 1896. The first description was by Bailey. Dickson (1925) found that this disease was caused by a mixture of tobacco and potato mosaic viruses.
- Mosaic, Sturgis, Connecticut 1899, N. Same as tobacco mosaic. Also by Woods in 1902). (Filiform fern leaf and cut leaf are other forms of mosaic.)
- Mosaic transmitted from *Physalis longifolia* by Gardner (1921), from *P. subglabrata*, *P. virginiana*, *P. heterophylla* and *S. carolinensis* by Gardner (1922); from *Abutilon theophrasti*, *Zinnia elegans*, *Calendula officinalis*, *Asclepias syrica*, *Nepeta cataria*, *Cucumis sativus*, *Martynia louisiana* *Zinnia elegans* and *Apium graveolens* by Elmer (1922); from *Phaseolus vulgaris*, *Cucubita pepo*, *Stokesia laevis* and *Nicotiana glutinosa*, *N. tabacum* by Elmer (1925); from *N. tabacum*, *N. nigrum* and *S. tuberosum* by Fernow (1926). E. M. Johnson (1930) recorded 7 types.
- Mosaic, Hori, Japan, 1920. N.
- Cucumber mosaic, Johnson, Wisconsin, 1926, I from *C. sativus*.
- Petunia mosaic, Johnson, Wisconsin, 1926, I from *N. tabacum*.
- Speckled tobacco mosaic, Johnson, Wisconsin, 1926, I from *N. tabacum*.
- Mild tobacco mosaic, Johnson, Wisconsin, 1926, I from *N. tabacum*.
- Yellows, Western yellows, yellow blight, & Summer blight, McKay & Dykstra, California, 1926, N. The first record appears to be in the Idaho Annual Report in 1904. Proved to be same as curly top of sugar beet.
- Curly top of sugar beet, Severin, California, 1928, NI.

- Spotted wilt of tomato, Simmons, Australia, 1927. Reported from Wisconsin by Doolittle in 1931.
- Yellow mosaic, Fukushi, Japan, 1928. N.
- Potato mosaic, J. Henderson Smith, England, 1928, I.
- Witches' broom, Young and Morris, Montana, 1928, I. Attacks potato and tobacco.
- Etch, etch +, severe etch, Johnson, Kentucky, 1930, N.
- Mosaic, from apparently healthy potato, Johnson, Kentucky, 1930, NI.
- Veinbanding, Johnson, Kentucky, 1930.
- Ring mosaic, Johnson, Kentucky, 1930, N.
- Cucumber mosaic (3 types) Johnson, Kentucky, 1930, I.
- Spotted wilt of tomato, Samuel, Bald & Pittman, Australia, 1930, N.
- Aster yellows, Kunkel, Maryland, 1930, I.
- Leaf roll, Dykstra, U. S. 1930, I from potato.
- Krausel mosaic, Schaffnit & Müller Germany, 1931, I from *S. tuberosum*.
- Streak of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Spotted wilt of tomato, K. M. Smith, England, 1931.
- Bunchy top, McClean, South Africa, 1931. Also attacks *Physalis peruviana*.
- Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I, from *S. tuberosum*.
- Streak, Valleau, Kentucky, 1932. By inoculation with tobacco mosaic, three strains of tobacco mosaic and plus healthy-potato virus, three strains of cucumber virus and healthy-potato virus, cucumber virus and etch + virus, and by healthy potato virus plus veinbanding virus.
- Aucuba or yellow mosaic, Caldwell, England, 1932, N.
- Leaf curl, Afzal, India, 1932 N. Same as on cotton.
- "Kroepoek", Thung, Java, 1932, I. from *N. tabacum*.
- Mosaic, van der Meer, Holland, 1932, from apparently healthy potato.
- Hy III, Hamilton, England, 1932, I.
- Die back, Shapovalov, California, 1933, N.
- Woody fruit, Rischkow, Karatschewsky & Michailowa, Crimea, 1933, N. Appear to be same as big bud of Australia, local name is "Stolbur".
- Stripe or streak, Ainsworth, England, 1933, N. Attacks, *N. tabacum*, *N. macrophylla*, *D. stramonium*, *S. melongena*, *S.*

ciliatum, *P. pubescens*, *C. annuum*, *Petunia* sp., and *sativus*.
Caused by a mixture of tomato and potato viruses.

Mild mosaic, Ainsworth, England, 1933, N. Same as Johnson's tobacco mosaic No. 1.

Glass house streak, Ainsworth, England, 1933. Attacks *N. glutinosa*, *D. stramonium*, *P. pubescens* and *C. annuum*.
Caused by a single virus.

Kromnek or Kat River Disease, Moore, South Africa, 1933. Also on tobacco and other Solanaceae. First record by Lounsbury in 1906.

Foliar Necrosis (Virus D), Bawden, England, 1934.

Celery virus 1, Wellman, Florida, 1934, I.

Mosaic, Ainsworth, England, 1934, I. Caused by virulent viruses of potato. Same as potato virus X.

Narrow leaf, Chamberlain, New Zealand, 1934, N. Very similar to filiform leaf.

Delphinium dwarf, Heald, Washington, 1934, I.

Delphinium stunt, Burnett, Washington, 1934, I.

4 streaks, Ainsworth, Berkeley & Caldwell, England, 1934, described four streaks; (I) single streak virus attacking tomato, tobacco, *D. stramonium* and *N. glutinosa*; (II) mixed-virus streak attacking tomato, *N. glutinosa* and *D. stramonium*; (III) stem necrosis streak of tomato and (IV) ring mosaic streak of tomato.

Yellow mottle mosaic, Ainsworth, England, 1935, I. from *C. sativus*.

Spotted wilt of tomato, Ogilvie, England, 1935, N.

LYCOPERSICON PIMPINELLIFOLIUM

Tobacco mosaic, Holmes, New York, 1932, I.

Virus disease, Hoggan & Johnson, Wisconsin, 1935, I. From *Brassica* sp.

NICANDRA sp.

Spotted wilt of tomato, Gardner & Whipple, California, 1934.

NICANDRA PHYSALOIDES

Mosaic, Gardner, Indiana, 1921, I from *L. esculentum*; *N. tabacum*, *S. aculeatissimum*; *D. stramonium*, *N. glutinosa*, *S. tuberosum*, *N. rustica* and *Echinocystis lobata*. E. M. Johnson (1930) inoculated with 7 strains.

Potato mosaic, J. Henderson Smith, England, 1928, I. from *L. esculentum*.

- Ring spot of tobacco, Wingard, Virginia, 1928, I, from *N. tabacum*.
- Etch, etch, +, severe etch and coarse etch, Johnson, Kentucky, 1930, I.
- Cucumber mosaic (3 types), Johnson, Kentucky, 1930, I. Also type 1 + veinbanding.
- Tomato mosaic, Schaffnit & Müller, Germany, 1931, I, from *L. esculentum*.
- Krausel mosaic, Schaffnit & Müller, Germany, 1931, from *S. tuberosum*.
- Streak of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Streak necrosis of tobacco, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Virus disease, Moore, South Africa, 1. May be same as spotted wilt of tomato.
- Obscure virus disease, Moore, South Africa, 1932. Also attacks *D. stramonium* and two species of *Physalis* and *N. tabacum*.
- Kromnek or Kat River Disease, Moore, South Africa, 1933.
- Delphinium mosaic, Heald, Washington, 1934.
- Delphinium stunt, Burnett, Washington, 1934, I.

NICOTIANA ACCUMINATA

- Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.
- Aucuba or yellow mosaic, Kunkel, N. Y. 1932, I.
- Tobacco mosaic, Holmes, N. Y. 1932, I.
- Spotted wilt of tomato, Gardner & Whipple, California, 1934, I.

NICOTIANA AFFINIS

- Potato mosaic, J. Henderson, Smith, England, 1928, I from *L. esculentum*.

NICOTIANA ALATA

- Mosaic, Allard, D. C. 1914, I. Inoculated from *Phaseolus vulgaris*, by Elmer, 1925.
- Aucuba or yellow mosaic, Kunkel, N. Y. 1932.
- Curly top of sugar beet, Freitag & Severin, California, 1933, I.
- Spotted wilt of tomato, Gardner & Walker, California, 1934.
- Virus disease, K. M. Smith, England, 1935. I from *Primula obconia*.

NICOTINA CLEVELANDI

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

NICOTIANA GLAUCA

Mosaic, Allard, D. C. 1917, I from *N. tabacum*. Very resistant.
Green mosaic with trace of yellow, McKinney, D. C. 1931.
Spotted wilt of tomato, K. M. Smith, England, 1932, I.
Crinkel or "Kroepoek", Thung, Java, 1932.
Curly top of sugar beet, Freitag & Severin, California, 1934, I.

NICOTIANA GLUTINOSA

Mosaic, Allard, D. C. 1916. Was believed to be distinct from mosaic of tobacco but Walker (1926) demonstrated that it was the same. From *N. tabacum* and *D. stramonium* by Elmer (1925), from *P. decandra* by Walker (1924), from *L. esculentum*, *S. aculeatissimum*, *N. glutinosa*, *N. physaloides* and alfalfa, by Pierce (1934).
Ring spot of tobacco, Fromme, Wingard & Priode, Virginia, 1928, I from *N. tabacum*.
Aucuba or yellow mosaic, Kunkel, N. Y. 1932, I, and by Caldwell in England same year, N.
Spotted wilt of tomato, K. M. Smith, England, 1932, I.
Tobacco mosaic, Holmes, N. Y. 1932, I from *N. tabacum*.
Hy III, Hamilton, England, 1932, I.
Glass house streak, Ainsworth, England, 1934.
Yellow mosaic, Ainsworth, Berkeley & Caldwell, England, 1934.
Foliar mosaic (Virus D), Bawden, England, 1934.
Celery virus 1, Wellman, Florida, 1934, I.
Virus diseases, K. M. Smith, England, 1935, I, from *Primula obconia*.
Yellow mottle mosaic (virus 1). Ainsworth, England, 1935, I, from *C. sativus*.
Virus disease, Hoggan & Johnson, Wisconsin, 1935, I from *Primula obconia*.
Yellow mottle mosaic (virus 1). Ainsworth, England, 1935, I, from *C. sativus*.
Virus disease, Hoggan & Johnson, Wisconsin, 1935, I from *Brassica*.

NICOTIANA LANCEOLATA

Mosaic, Cruz & Bruner, Cuba, 1931, N.

NICOTIANA LANSDORFII

Mosaic, Allard, D. C. 1914, I very resistant.

Ring spot of tobacco, Fromme, Wingard, Virginia, 1928, I from *N. tabacum*.

Aucuba or yellow mosaic, Kunkel, N. Y. 1932.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, California, 1934, I.

Virus disease, K. M. Smith, England, 1935, I from *Primula obconia*.

NICOTIANA LONGIFLORA

Mosaic, Allard, D. C. 1914, I.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

NICOTIANA MACROPHILLA

Stripe and curl, Böning, Germany, 1931, N.

Spotted wilt of tomato, Ainsworth, England, 1933, I.

NICOTIANA MULTIVALIS

Ring spot, Wingard, Virginia, 1928, I.

NICOTIANA PANICULATA

Mosaic, Allard, D. C. 1914, I.

Ring spot of tobacco, Wingard, 1928, from *N. tabacum*.

Aucuba or yellow mosaic, Kunkel, U. S. 1932. I.

NICOTIANA PLUMBAGINIFOLII

Mosaic, Allard, D. C., 1914.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

NICOTIANA QUADRIVALIS

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*. Also the var *multivalis*.

Tobacco mosaic, Holmes, N. Y. 1932, I from *N. tabacum*.

NICOTIANA REPANDA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

NICOTIANA RUSBYI

Aucuba or yellow mosaic, Kunkel, N. Y. 1932, I.

NICOTIANA RUSTICA

Mosaic, Allard, D. C. 1914, I. From tobacco in 1930; from *N.*

- rustica*, *N. tabacum*, *N. glutinosa*, and *Rumex obtusifolius*. E. M. Johnson, (1930) inoculated with 7 strains.
- Ring spot of tobacco, Wingard, Virginia, 1928, I. From *N. tabacum*.
- Curly top of sugar cane beet, Severin, California, 1929, I.
- Etch, etch +, coarse etch, several strains of tobacco mosaic, Johnson, Kentucky, 1930, I from *N. tabacum*.
- Veinbanding, Johnson, Kentucky, 1930, I.
- Healthy potato virus, Johnson, Kentucky, 1930, I.
- Cucumber mosaic, (7 types). Johnson, Kentucky, 1930 I. Also type 3 + veinbanding virus.
- Tomato mosaic, Johnson, Kentucky, 1930, I.
- Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.
- Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I. from *S. tuberosum*.
- Tomato mosaic, Schaffnit, Germany, 1931, I from *L. esculentum*.
- Streak of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.
- Stripe and curl, Böning, Germany, 1931, N.
- Aucuba or yellow mosaic, Kunkel, New Jersey, 1932, I.
- Spotted wilt of tomato, K. M. Smith, England, 1932, I.
- Crinkle or Kroepoek, Thung, Java, 1932, I from *N. tabacum*.

NICOTIANA SANDERAE

- Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.
- Potato mosaic, J. Henderson, Smith, England, 1928, I from *L. esculentum*.
- Tobacco mosaic, Holmes, N. Y. 1932, I from *N. tabacum* and back.
- Spotted wilt of tomato, Gardner & Whipple, California, 1934, I.
- Celery virus 1, Wellman, Florida, 1935, I.

NICOTIANA SUAVEOLENS

- Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.
- Spotted wilt of tomato, Samuel, Bald & Pittman, Australia, 1930. I. Similar symptoms on *S. nigrum* and *P. peruviana*.
- Aucuba or yellow mosaic, Kunkel, N. Y. 1932, I.

NICOTIANA SYLVESTRIS

- Mosaic, Allard, D. C. 1914, I from *N. tabacum*.

Ring spot of tobacco, Fromme, Wingard & Priode, Virginia, 1924, from *N. tabacum*.

Aucuba or yellow mosaic, Kunkel, N. Y. 1932, I.

Celery virus 1, Wellman, Florida, I. 1935.

NICOTIANA TABACUM

Mosaic, First authentic record by Sweiten in 1857 but known long before that time. Early studies by Mayer in Holland & Woods in U. S. Clinton (1908) reported transmission from *L. esculentum*. Johnson (Wisconsin) reported transmission from squash by insects (1922) and that it was probably same as cucumber mosaic. Elmer (1924) transmitted the disease from *Abutilon theophrastii*, *Aquilegia canadensis*, *A. coerulea*, *Euphorbia presslii*, *Cucurbita pepo*, *Cucumis sativus*, *Cucurbita moschata*, *Phaseolus theophrastii*, *Rubus strigosus*, *Zinnia elegans*, *Calendula officinalis*, *Stokesia laevis*, *Asclepias syriaca*, *Martynia louisiana*, *Aquilegia canadensis*, *Apium graveolens*, *Cucurbita pepo*, var. *condensa*, *Saccharum officinarum*. (The only record on *S. officinarum*) *Zea mays* (only one record). (Some of these strains may be same as tobacco mosaic. By Elmer (1925) from *Cucumis sativus*, *Cucurbita pepo*, *Zea mays*, *Datura stramonium*, *Nicotiana tabacum* and *N. glutinosa*, *Rubus strigosus*, and by Fernow from *L. esculentum*, *M. louisiana*, *S. aculeatissimum*, *S. tuberosum*, *N. physaloides*, *D. stramonium*, *N. glutinosa*. By Johnson (1925) (Wisconsin) from apparently healthy potatoes, Valteau & Johnson (1928) reported four distinct strains. Van der Meer (1932) produced mosaic by inoculation with juice from apparently healthy potatoes.

Ring spot of tobacco, Fromme & Wingard, of Virginia, 1922, Known since 1917, Johnson of Kentucky transmitted a ring spot from *S. tuberosum* in 1930.

Interveinal mosaic, Quanjer, Holland, 1923, I from *S. tuberosum*.

Yellow mosaic. There are several records. The compiler has not found the first record of yellow mosaic, McKinney (1931) reported that 22 out of 24 collections of green mosaics from different sources contained yellow mosaic. A yellow mosaic was transmitted from tomato by Stover & Vermillion in 1933. Kunkel (1930) reported inoculation with a yellow or aucuba mosaic. Fukushi of Japan reported a yellow mosaic in 1929. Bewley & Bolas of England reported an aucuba mosaic in 1930.

- Cucumber mosaic, Johnson, Wisconsin, 1926, I from *C. sativus*. Valteau & Johnson by inoculation from *N. tabacum*, melons and *Asclepias* sp. 1928. Hoggan reported inoculations with ordinary and yellow cucumber mosaics in 1935. Ainsworth of England reported inoculation with yellow mosaic (virus 1) from cucumber in 1935.
- Petunia mosaic, Johnson, Wisconsin, 1926, I.
- Mild tobacco mosaic, Johnson, Wisconsin, 1926, I.
- Streak, Johnson, Wisconsin, 1926, I. From *S. tuberosum* and *N. tabacum*.
- 3 types of tobacco mosaic, Johnson, Wisconsin, 1926, I from apparently healthy potatoes.
- Rotterdam B disease, Jochems, Sumatra, 1926.
- Vein disease, Jochems, Sumatra, 1926.
- Etch, etch +, severe etch, coarse etch, Johnson, Kentucky, 1932, N.
- Potato mosaic, J. Henderson Smith, England, I from *L. esculentum*.
- Ringspot of tomato, Johnson and Valteau of Kentucky, 1928, NI from *N. tabacum*, *C. sativus*, and *S. carolinensis*.
- Witches' broom, Young, Montana, 1929. Also attacks *S. tuberosum* and *L. esculentum*.
- Yellow mosaic, Fukushi, Japan, 1929.
- Curly top of sugar beet, Severin, California, 1929.
- Spotted wilt of tomato, K. M. Smith, England, 1930 and Samuel, Bald & Pittman, Australia who inoculated from *L. esculentum*.
- Veinbanding, Valteau, Kentucky, 1930. In fields where potatoes had been grown. Also by Johnson.
- Spotted necrosis, Valteau, Kentucky, 1930, I from potato. Same as rugose mosaic of potato, caused by mixture veinbanding and healthy potato viruses.
- Crinkle A of potato, Salaman, England, 1930, I, from *S. tuberosum*.
- Veinbanding, Johnson, Kentucky, 1930, N.
- Healthy potato virus, Johnson, Kentucky, 1930, I.
- Cucumber mosaic, (3 types), Johnson, Kentucky, 1930, N.
- Virus disease, Moore, South Africa, 1930, I. Appears to be same as local virus disease of tomato, which may be the same as spotted wilt of tomato of Australia. Same as a virus disease of *D. stramonium*, *Physalis*, *Nicandra physaloides*.
- Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.

- Streak of potato, Schaffnit & Müller, Germany, 1931, I.
- Green ring spot, Valteau & Johnson, Kentucky, 1931, N. Can be transmitted by seeds.
- Celerly mosaic, Doolittle, Florida, 1931, I. Probably same as cucumber mosaic.
- Green mosaic, free from yellow, McKinney, D. C. 1931, Mild.
- Spot necrosis, Koch, Wisconsin, 1931, N. Same as rugose mosaic of potato. Caused by combination of two distinct viruses.
- “Kroepoek,” Kerling, Java, 1932, N. Also attack *Zinnia elegans*. Thung reports three types: (1) Common, (2) transparent and curl disease or “Kruziekte”. Has been transmitted to tomato, *N. glauca* and *N. rustica*. A similar disease occurs on *Synedrella nodiflora* and *Zinnia elegans*.
- Leaf curl of cotton, Afzal, India, 1932, N.
- Ring spots (green and yellow), Valteau, Kentucky, 1932, N.
- Hy I and II, Hamilton, England, 1932, NI.
- Leaf curl, crinkle, frenching and crinkle dwarf. Storey, South Africa, 1932, N. Also known as cabbaging in Nyasaland and “Kroepoek” in Java.
- Spotted wilt of tomato, K. M. Smith, England, 1932, I.
- Aucuba mosaic, Kunkel, N. Y. 1932. I.
- Kromnek or Kat River Disease, Moore, South Africa, 1933. Also on tomato and other solanaceae. First record by Lounsbury 1906.
- An obscure and destructive disease, Moore, South Africa, 1932, N. Also attacks *Datura stramonium*, *Nicandra physaloides* and two species of *physalia*.
- Delphinium virus, Valteau, Kentucky, 1932.
- Delphinium stunt, Burnett, Washington, 1934, I from *Delphinium*.
- Delphinium dwarf, Heald, Washington, 1934, I.
- Mosaic, Pierce, Wisconsin, 1934, I from alfalfa.
- Yellow mosaic of tomato, Ainsworth, Berkeley and Caldwell, England, 1934.
- Foliar necrosis (virus D), Bawden, England, 1934, I from *S. tuberosum*.
- Streak, Dufrenoy, France, 1934, I from Peony.
- Celery virus 1, Wellman, Florida, 1934, I.
- Delphinium virosis, Burnett, Washington, 1934, I.
- Virus disease, Hoggan & Johnson, Wisconsin, 1935, I from *Brassica* sp.

Virus disease, K. M. Smith, England, 1935, I from *Brassica* sp. and *Primula obconia*.

NICOTIANA TOMENTOSA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Mosaic, Holmes, N. Y., 1932, I from *N. tabacum*.

NICOTIANA TRIGONOPHYLLA

Ring spot of tobacco, Wingard, 1928, I from *N. tabacum*.

NICOTIANA VISCOSUM

Mosaic, Allard, D. C., 1916, Walker (1925) stated that this was *N. glutinosa*.

"Krömenk," Lounsbury, South Africa, 1906, N.

"Corcova," Fawcett, Argentine, 1921.

PETUNIA sp.

Mosaic, Woods, D. C. 1902, N. Allard inoculated from *N. tabacum* in 1912 and Elmer from squash in 1922.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

Rosette, Brooks, Gambia, 1932, N. Appears to be same as on *A. hypogea*.

Hy III, Hamilton, England, 1932, I.

PETUNIA HYBRIDA

Curly top of sugar beet, Severin & Freitag, California, 1933, NI.

Ring spot of tobacco, Priode, N. Y., 1928, I.

Mild mosaic of tobacco (type 1). Johnson, Kentucky, 1930, N.

Etch, etch +, severe etch, coarse etch, Johnson, Kentucky, 1930, N.

Cucumber mosaic (type 1), Johnson, Kentucky, 1930, N.

Veinbanding of tobacco, Johnson, Kentucky, 1930, N.

Healthy potato virus, Johnson, Kentucky, 1930, N.

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

Curly top of sugar beet, Severin & Freitag, California, 1933, NI. From sugar beet by *E. tenellus*.

Delphinium stunt, Burnett, Washington, 1934, I.

Delphinium mosaic, Heald, Washington, 1934, I.

Celery virus 1, Wellman, Florida, 1935, I.

PETUNIA VIOLACEA

Mosaic, Elmer, Iowa, 1925, I from *Cucumis sativus*.

Spotted wilt of tomato, K. M. Smith, England, 1925, I from *C. sativus* and *C. pepo*. The former a symptomless carrier.

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Potato mosaic, J. Henderson, Smith, England, 1928, I from *L. esculentum*.

Mosaic, Fukushi, Japan, 1927.

Yellow mosaic, Kawai, Japan, 1932.

PHYSALIS sp.

Mosaic, Allard, D. C. 1912, I from *N. tabacum*. Inoculated from *C. sativus*, by Doolittle and Walker in 1923.

Celery mosaic, Doolittle, Florida, 1931. Probably same as cucumber mosaic.

Virus disease, Moore, South Africa, 1932, I. May be same as spotted wilt of tomato.

Rugose mosaic, Dykstra, U. S. 1931, I from *S. tuberosum*.

An obscure virus disease, Moore, South Africa, 1932. Attacks *D. stramonium*.

Spotted wilt of tomato, Tompkins & Gardner, 1934, I.

PHYSALIS ALKENGI

Mosaic, Nishimura, U. S., 1918, I. From tobacco. No symptoms.

Holmes (1932) said that this species showed symptoms for a short time.

Mild mosaic, van der Meer, Holland, 1932, I from apparently healthy potatoes.

Celery virus 1, Wellman, Florida, 1935, I.

PHYSALIS ANGULATA

Ring spot of tobacco, Wingard, Virginia, 1928, I from *N. tabacum*.

Mosaic, Holmes, N. Y. 1932, I from *N. tabacum*.

Celery virus 1, Wellman, Florida, 1934, I.

PHYSALIS HETEROPHYLLA

Mosaic, Gardner & Kendrick, Indiana, 1922, NI from *L. esculentum*. From *R. obtusifolius*, *N. tabacum* by Fernow in 1925. From *C. sativus* by Walker in 1926. From tobacco by E. M. Johnson (1930).

Tobacco mosaic, (7 strains) Johnson, Kentucky, 1930, I.

Etch, etch +, severe etch and coarse etch, Johnson, Kentucky, 1930, NI.

Veinbanding, Johnson, Kentucky, 1930, I.

Healthy potato virus, Johnson, Kentucky, 1931, N.

Cucumber mosaic, (3 types), Johnson, Kentucky, 1930, I. Also type 3 veinbanding virus.

Ring spot of tobacco, Johnson, Kentucky, 1930, I.

PHYSALIS LOGASCAE

Celery virus 1, Wellman, Florida, 1934, I.

Mosaic, Doolittle & Walker, 1934, I from *Commelina nudiflora*.

PHYSALIS LONGIFOLIA

Mosaic, Gardner, Indiana, 1921, NI, from *L. esculentum*.

PHYSALIS MINIMA

Kromnek or Kat River Disease, Moore, South Africa, 1932.

PHYSALIS PERUVIANA

Mosaic, Gardner & Kendrick, Indiana, 1922, I from *L. esculentum*.

Tobacco mosaic, Holmes, N. Y., 1932, from *N. tabacum*.

Celery virus 1, Wellman, Florida, 1935, I.

PHYSALIS PUBESCENS

Mosaic, Gardner & Kendrick, Indiana, 1922, I, from *L. esculentum*. Transmitted by Walker from *C. sativus* (1924) and from *Phytolacca decandra*, *N. tabacum* and *L. esculentum* (1925). By Gardner & Kendrick, from *P. subglabrata* and *P. heterophylla* (1925). From tobacco, E. M. Johnson (1934).

Mosaic, Fukushi, Japan, 1928.

Tobacco mosaic, Johnson, Kentucky, 1930, N.

Etch, etch +, severe etch and coarse etch, Johnson, Kentucky, 1930, I.

Veinbanding, Johnson, Kentucky, 1930, I.

Healthy potato mosaic, Johnson, Kentucky, 1930, I.

Glass house streak, Ainsworth, England, 1933.

Celery virus 1, Wellman, Florida, 1934, I.

PHYSALIS SUGLABRATA

Mosaic, Gardner & Kendrick, Indiana, 1922, N. Transmitted from *L. esculentum*, *N. tabacum*, *S. tuberosum* and *R. obtusifolius* by Fernow (1925) and from *C. sativus* by Walker (1926).

PHYSALIS VIRGINIANA

Mosaic (tomato), Gardner & Kendrick, Indiana, 1922, N.

PHYSALIS WRIGHTII

Curly top of sugar beet, Severin, California, 1934, NI.

SALPIGLOSSIS sp.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Spotted wilt of tomato, Gardner & Whipple, California, 1935, I.

SALPIGLOSSIS SINULATA

Potato mosaic, J. Henderson Smith, England, 1928, I from *L. esculentum*.

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet, by *E. tenellus*.

SCHIZANTHUS sp.

Aster yellows, Kunkel, N. Y. 1926, I from *C. chinensis*.

Spotted wilt of tomato, Ogilvie, England, 1933, N.

SCHIZANTHUS WISETONENSIS

Curly top of sugar beet, Freitag & Severin, California, 1933, I from sugar beet by *E. tenellus*.

SOLANUM ACULEATISSIMA

Mosaic, Nishimura, U. S. 1918, I, from *N. tabacum*. Transmitted by Fernow (1925) from *L. esculentum*, *N. tabacum*, *S. tuberosum*, *D. stramonium*, *N. physaloides*, and *N. glutinosa*.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

SOLANUM ATROPURPUREUM

Leaf roll, Ducomet, France, 1921, N. Same as on *S. tuberosum*.

Curly leaf, Ducomet, France, 1921, N. Same as on *S. tuberosum*.

Frisolée, Ducomet, France, 1922, N. Same as mosaic of *S. tuberosum*.

SOLANUM CAPSICASTRUM

Spotted wilt of tomato, K. M. Smith, 1932, I.

SOLANUM CAROLINENSE

Mosaic, Allard, D. C., 1912, N. Transmitted from *N. tabacum* 1914. Transmitted by Fernow from *L. esculentum*, *N. tabacum*, *S. tuberosum*. E. M. Johnson (1930) inoculated with 6 strains of tobacco mosaic.

Ring spot of tobacco, Wingard, Virginia, 1928, I. From *N. tabacum*.

Etch, etch +, severe etch, Johnson, Kentucky, 1930, N.

Healthy potato mosaic, Johnson, Kentucky, 1930, I.

Cucumber mosaic, (3 types). Johnson, Kentucky, 1930, I.

Mosaic, Fernow, N. Y. 1925, I from *N. tabacum* and *S. tuberosum*.

SOLANUM COMMERSONII

Leaf roll, Ducomet, France, 1921, N. Same as on *S. tuberosum*.

Curly leaf, Ducomet, France, 1921, N. Same as on *S. tuberosum*.

"Frisolée," Ducomet, France, 1922, N. Same as potato mosaic.

SOLANUM CILIATUM

Glass house streak, Ainsworth, England, 1933.

SOLANUM DEMISSUM

Spot. Reddick, México, 1932, N. In 1935, Dr. Reddick informed the compiler by letter that this was a virus disease.

SOLANUM DOUGLASII

Curly top of sugar beet, Severin, California, 1929, NI.

SOLANUM DULCAMARA

Mosaic, Gardner, Indiana, 1921. I from *L. esculentum*.

Potato mosaic, J. Henderson Smith, England, 1928, I from *L. esculentum*.

Leaf roll, Dykstra, U. S. 1930, I from *S. tuberosum*.

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

SOLANUM HUMILE

Streak necrosis of tobacco, Schaffnit & Müller, Germany, 1931
I from *S. tuberosum*.

Streak necrosis of potato Schaffnit & Müller, Germany, 1931,
I from *S. tuberosum*.

Streak of potato, Schaffnit & Müller, Germany, 1931, I from
S. tuberosum.

Krausel mosaic, Schaffnit & Müller, 1931, I.

Mosaic, Gardner & Kendrick, Indiana, 1922, I from *L. esculentum*.

SOLANUM LACINIATUM

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

SOLANUM LYCOPERSICON

Aster yellows, Kunkel, N. Y. 1931. I by *C. sexnotata*.

Spotted wilt of tomato, K. M. Smith, England, 1932 I.

SOLANUM MAGLIA

Leaf roll, Ducomet, France, N. Same as on *S. tuberosum*.

Curly leaf, Ducomet, France, 1921, N. Same as on *S. tuberosum*.

"Frisolée," Ducomet, France, 1921, N. Same as mosaic of *S. tuberosum*.

SOLANUM MARGINATUM

Spotted wilt of tomato, K. M. Smith, England, 1932, I.

SOLANUM MELONGENA

Mosaic, Burger, Florida, 1924, N. Johnson of Kentucky (1930) reported inoculation with 6 strains of tobacco which produced necrotic lesions but not systemic. Also many other plants. (There are earlier records.)

Ring spot of tobacco, Wingard, Virginia, 1928, from *N. tabacum*.

Coarse etch, Johnson, Kentucky, 1930, I.

Mosaic from tobacco, Holmes, New York, 1932.

Spotted wilt of tomato, K. M. Smith, England 1932, I.

Celery virus 1 Wellman, Florida, 1935, I.

SOLANUM NIGRUM

Mosaic, Allard, D. C. 1914, I from *N. tabacum*. Transmitted from *L. esculentum*, by Gardner (1921) and from *N. tabacum*, *L. esculentum* and *S. tuberosum* by Fernow (1925).

Potato mosaic, J. Henderson Smith, England, 1928, I. from *L. esculentum*.

Ring spot of tobacco, Wingard, Virginia, 1928, I, from *N. tabacum*.

Leaf roll, Dykstra, U. S. 1930, I, from *S. tuberosum*.

Spotted wilt of tomato, K. M. Smith, England, 1932, NI.

Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I, from *S. tuberosum*.

Tomato mosaic, Schaffnit & Müller, Germany, 1931, I, from *L. esculentum*.

"Krausel" mosaic, Schaffnit, Germany, 1931, I, from *S. tuberosum*.

Streak of potato, Schaffnit & Müller, Germany, 1931, I, from *S. tuberosum*.

Yellow mosaic, Stover & Vermillion, U. S., 1933.

Kromnek of Kat Rives Disease, Moore, South Africa, 1933.

Delphinium mosaic, Washington, 1934, I.

Delphinium stunt, Burnett, Washington, 1934, I.

Celery virus 1, Wellman, Florida, 1935, I. Symptomless.

SOLANUM NODIFLORUM

Potato mosaic, J. Henderson Smith, England, 1928.

Potato mosaic, J. Henderson Smith, England, 1930, I, from *L. esculentum*.

- Aucuba or yellow mosaic, J. Henderson Smith, England, 1930, I.
 Spotted wilt of tomato, K. M. Smith, England, 1931.
 Mild mosaic, van der Meer, Holland, 1932, I from apparently healthy potatoes.

SOLANUM PSEUDOCAPSICUM

- Ring spot of tobacco, Wingard, Virginia, 1928. I, from *N. tabacum*.
 Mosaic of tobacco, Holmes, N. Y., 1932, I from *N. tabacum*.

SOLANUM TUBEROSUM

- Phloem necrosis, Quanjer, Halland, 1908. N. Described in 1913. Same as leaf roll.

Mosaic. It appear that Orton first observed potato mosaic in Germany in 1911. The first transmission of the disease by inoculation appears to have been Schultz et al in 1919. Reiling (1924) says the disease was known in Germany in 1785. Known in Germany for many years before 1912. Inoculated from *L. esculentum*, *N. tabacum* and *S. tuberosum* by Fernow, 1925.

Curly dwarf, Orton, U. S. 1914, N. Observed as early as 1912. Known in Germany previous to this date: May be same as mosaic. Goss (1930) said that under some conditions it was impossible to separate curly dwarf and spindle tuber.

Leaf roll, Orton, U. S. 1913, N. Orton said this disease had been known in Germany and Denmark since 1905 and in U. S. since 1911. Quanjer et al said (1919) that this disease should be known as phloem-necrosis or lepto-necrosis. Some workers believe that the potato failures in middle and western Europe in 1770-1780 were due to leaf roll. Reiling (1924) said leaf roll was known in Germany in 1785. Schultz and Folsom (1921) reported a leaf roll which was apparently non-parasitic but transmissible. They stated that it is also called phloem-necrosis and probably widely distributed over the earth. They mention net-necrosis as a possible symptom of leafroll.

Boulent, Mottet, France, 1913, N. Causes failure to germinate.
 Spindling sprout, Stewart, N. Y. 1934, N. Stewart and Serrine (1915) stated that Close and White had described this disease in 1919 and that Macoun of Ottawa Canada claimed to

- have seen it in 1905. The "filositée" of France and the "Fadenbildung" and "Fadenkrankheit" of Germany resemble the spindle sprout but it has not been demonstrated that they are the same or that they are caused by a virus. "Filositée" was reported from France by Mottet, 1913.
- Net necrosis, Orton, U. S. 1914, N. Atanasoff (1926) said this was a symptom of aucuba mosaic. The symptoms may be due to more than one cause. Quanjer & Elze reported a pseudo-netnecrosis in 1929.
- Crinkle, Murphy, Canada, 1921, N. Possible same as leaf rolling mosaic. In 1930 Salaman expressed the opinion that this disease was due to a mixture of viruses. This opinion was confirmed by Kenneth M. Smith in 1931. Reiling says that crinkle was known in Germany in 1785.
- Russett dwarf, Hungerford, Idaho. 1922, N.
- Yellow dwarf, Barrus & Chupp, N. Y. 1922, N. Can be transmitted to *L. esculentum* and *S. nigrum*.
- "Frisolée," Ducomet, 1922, N. This is a very old term which Ducomet claims to have been used for mosaic.
- Spindling tuber, Schultz & Folsom, Maine, 1922, N. Gilbert (1923) said that spindling sprout was a symptom of leaf roll but not of mosaic. Gilbert (1925) said that Giant hill was a phase of spindle tuber. Goss (1930) said that under some conditions it was impossible to separate spindle tuber and curly dwarf. Known by growers for many year as "running long".
- Calico, Hungerford, Idaho, N. Porter (1931) of California proved it to be infectious.
- Giant Hill, Gilbert, Vermont, 1923, N. Gilbert (1925) said that Giant hill was a phase of curly dwarf.
- Stipple streak, Quanjer, Holland, 1923 or earlier, N.
- Uumottled curly dwarf, Schlutz & Folson, Maine, 1923, N.
- Witches' broom, Hungerford & Dana, Montana, 1923, N. Young & Morris (1928) stated that the first record of witches' broom was from Montana in 1915 but that it was supposed to be due to *Rhizoctonia*. Potato witches' broom was first described by Bisby & Tolaas in Minn. Bull. 190 (1928) or by Whipple in Montana, Bull. 130, 1919 as "yellow top degenerates". Transmission by tuber was demonstrated in Idaho 1923. Also attacks tomatoes.

- Latent or acronecrosis (top-necrosis), Quanjer, Holland, 1923.
- Rugose mosaic, Quanjer, Holland, 1923.
- Crinkle, Quanjer, Holland, 1923. Johnson (1929) said that the crinkle was probably the same as Schultz and Folsom rugose mosaic.
- Aucuba mosaic, Quanjer, Holland, 1923.
- Leaf-rolling mosaic, Schultz & Folsom, Maine, 1923, N.
- Crinkle mosaic, Schultz & Folsom, Maine, 1925.
- Mosaic, Fernow, N. Y. 1925, I, from *L. esculentum* & *N. tabacum*.
- Cucumber mosaic, Doolittle & Walker, Wisconsin, 1927, I. From *C. sativus* and back, transmitted by Johnson of Wisconsin from tobacco mosaic. Confirmed by Blodgett (1927) who got different symptoms on different varieties.
- Potato mosaic, Blodgett, N. Y. 1927, N. The symptoms varied on different varieties of potatoes.
- Raspberry leaf, Reiling, Holland, 1928, N.
- Curly top of sugar beet, Severin, California, 1929, NI.
- Phloem necrosis, Quanjer, Thung & Elze, Holland, 1929.
- Atanasoff's stipple streak, Atanasoff, Holland, 1929, N.
- Kolsiaan stipple streak, Quanjer & Botjes, Holland, 1929, N.
- Noordeling stiple streak, Quanjer & Botjes, Holland, 1929, N.
- Ersterling stipple streak, Quanjer & Botjes, Holland, 1929, N.
- Top necrosis, Quanjer & Botjes, Holland, 1929, N.
- Apical leaf, roll, Schultz & Bonde, Maine, 1929, N.
- Rugose mosaic, Valleau, Kentucky, 1930, I. Same as spot necrosis of tobacco. Caused by combination of healthy potato virus and veinbanding.
- Pseudo-necrosis, Quanjer, Thung & Elze, Holland, 1930, N. Atanasoff, comparing it with some of the earlier figures of necrosis identified it with this American disease, and finding it in potato infested with Aucuba mosaic also, considered it as a tuber symptom of this disease. . . . It was later found in several varieties which were free from Aucuba mosaic.
- Para-crinkle, Salaman, Redcliff & Le Polley, England, 1930, N.
- Ring spot of tobacco, Kentucky, 1930, N.
- Spotted wilt of tomato, K. M. Smith, England, 1931, N. I. by grafting.
- Moron, Muncie, Michigan, 1931, N.
- Virus A. Loughnane, England, 1933, N.
- Foliar necrosis, (Virus D.) Bawden, England, 1934, N.

NICOTIANA VILLOSUM

Streak necrosis of potato, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.

Streak of potato, Schaffnit & Müller, Germany, 1931, I.

Rugose mosaic, Dykstra, U. S. 1933, I.

Potato mosaic, J. Henderson Smith, England, 1928, I. from *L. esculentum*.

Tomato mosaic, Schaffnit & Müller, Germany, 1931, I from *L. esculentum*.

Krausel mosaic, Schaffnit & Müller, Germany, 1931, I from *S. tuberosum*.

Virus X, K. M. Smith, England, 1931. This virus attacks *Lycopersicon esculentum*, *N. tabacum*, *N. glutinosa* and *Datura stramonium*.

STREPTOSOLEN JAMESONII

Spotted wilt of tomato, K. M. Smith, England, 1933, N.

STERCULIACEAE

THEOBROMA sp.

Roncet, Ciferri, Dominican Republic, 1929, N. This disease occurs in Puerto Rico. Not proved to be a virus disease.

TROPAEOLACEAE

TROPAEOLUM MAJUS

Curly top of sugar beet, Severin & Freitag, California, 1933, NI from sugar beet, by *E. tenellus*.

Celery virus 1, Wellman, Florida, 1935, I.

Spotted wilt of tomato, Ainsworth, England, 1933, I.

TROPAEOLUM PEREGRINUM

Curly top of sugar beet, Severin & Freitag, California, 1933, I.

Spotted wilt of tomato, Ogilvie, England, 1935, N.

UMBELLIFEREAE

AMMI MAJUS

Aster yellows, Kunkel, N. Y. 1931, I by *C. sexnotata*.

ANETHUM GRAVEOLENS

Aster yellows, Kunkel, N. Y. 1925, NI, from *C. chinensis*.

Curly top of sugar beet, Severin, California, 1929, I.

Celery virus 1, Wellman, Florida, 1935, I.

ANETHUM GRAVEOLENS DULCE

Mosaic, Poole, New Jersey, 1922, N.

Aster yellows, Kunkel, N. Y. I from *C. chinensis*.

Curly top of sugar beet, Severin, California, 1929, I from sugar beet.

California aster yellows, Severin, California, 1929, NI.

Celerly virus 1, Wellman, Florida, 1935.

ANTRISCUS CEREFOLIUM

Curly top of sugar beet, Severin, California, 1929, I.

APIUM GRAVEOLENS

Mosaic, Doolittle & Wellman, Florida, 1934, I. From *Commelina nudiflora*. In 1934, Wellman described this as Celery virus 1.

Spotted wilt of tomato, Gardner, Tompkins & Whipple, California 1935, I.

Celerly virus 1, Wellman, Florida, 1935, I.

APIUM GRAVEOLENS RAPACEUM

California aster yellows, Severin, California, 1929, I.

Celerly virus 1, Wellman, Florida, 1935, I.

CORIANDRUM SATIVUM

Curly top of sugar beet, Severin, California, 1929, I.

DAUCUS sp.

Yellows, Severin, California, 1930, NI. Also on parsley. Carried by *C. saxnotata*. Severin (1932) demonstrated carrot, parsley and parsnip yellows due to same virus and transmitted by *C. saxnotata* (*C. divisa*). He used *Daucus carota* var. *sativa*, *Apium graveolens* var. *rapacens*, *Apium graveolens* var. *dulce*, *Petroselinum hortense* var. *radicosum*, and *Pastinaca* sp. Whetzel reported a yellows disease of carrot in New York in 1929 but it was probably different from the one that Severin studied.

DAUCUS CAROTA

Aster yellows, Kunkel, N. Y. 1931, I.

Celerly virus 1, Wellman, Florida, 1935, I.

DAUCUS CAROTA VAR. SATIVA

California aster yellows, Severin, California, 1932, NI.

Tobacco mosaic, Grant, Winconsin, 1934, I.

DIDISCUS CAERULENS

Aster yellows, Kunkel, N. Y. 1925, from *C. chinensis*.

DIDISCUS PUSILLUS

Aster yellows, Kunkel, N. Y. 1931.

FOENICULUM DULCE

Curly top of sugar beet, Severin, California, 1929, I.

FOENICULUM VULGARE

Celery virus 1, Wellman, Florida, 1935, I.

LEVISTICUM PALUDAPIFOLIUM

Aster yellows, Kunkel, N. Y. 1931, I.

PASTINACA SATIVA

Aster yellows, Kunkel, N. Y. 1931, I.

California aster yellows, Severin, California, 1932, NI.

PETROSELINUM HORTENSE

Curly top of sugar beet, Severin, California, 1929, N.

California aster yellows, Severin, California, 1932, I. Also on
vars. *crispus* and *radicosum*.

Celery virus I, Wellman, Florida, 1935, I.

PINPINELLA ANISUM

Aster yellows, Kunkel N. Y., 1925, IN from *C. chinensis*.

SCANDIX PECTEN-VENERIS

Mosaic, Verplancke, Belgium, 1932, I.

Yellows, Verplancke, Belgium, 1932, I.

TRACHYME CAERULEA

Curly top of sugar beet Freitag & Severin, California, 1929, I.

ULMACEAE

ULMUS sp.

Mosaic, Salmon & Ware, England, 1928. Described in 1925.

ULMUS GLABRA

Mosaic, Rankin, N. Y. 1931, N.

ULMUS PUMILA

Mosaic, Rankin, N. Y. 1931, N.

URTICACEAE

URTICA DIVICA

Mosaic, Ogilvie, England, 1933, N.

Spotted wilt of tomato, Ogilvie, England, 1935, N.

URTICA URENS

Curly top of sugar beet, Carsner, California, 1919.

VALERIANACEAE

CENTRANTHUS CALCITRAPA

Aster yellows, Kunkel, N. Y. 1932, I by *C. saxnotata*.

VALERIANELLA LOCUSTA OLITORIA

Curly top of sugar beet, Severin, California, 1929, I.

VERBENIACEAE

VERBENA VINIFERA

Mosaic, Straviak, Czechoslovakia, 1931, N, Gardner & Whipple, California, 1935, I.

VIOLACEAE

VIOLA CORNATA

Curly top of sugar beet, Freitag & Severin, California, 1933, I.

VIOLA TRICOLOR HORTENSIS

Curly top of sugar beet, Freitag & Severin, California, 1933, N.

VITACEAE

VITIS sp.

Mosaic, Smolak, Czechoslovakia, 1926, N.

Leaf roll, Petri, France, 1929, N. May be same as "roncet", "court noué", Resigkrankheiten, etc., which have been reported by several workers.

ZINGIBERACEAE

ELETTARIA CARDAMOMUM

Mosaic, Kulkarni, India, 1924, N.