

GLADIOLUS VIRUSES

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Gladiolus has been a major flower crop since shortly after World War II. Corms have facilitated the propagation of desirable varieties but have also been directly responsible for the spread of virus diseases detrimental to the production of gladiolus flowers. The following descriptions of gladiolus viruses are general and subject to varietal variations.



MILD MOSAIC

A mild mosaic in gladiolus is produced by the bean yellow mosaic virus (4). Local lesions consist of angular, yellow-green and dark green mottling in the leaves and stems (Fig. 1). Affected flowers have very faint pencil-stripe patterns. This virus is most readily detected in early summer when the plants are growing rapidly. Spread of this virus is effected by aphids. Host range (5) includes bean (*Phaseolus vulgaris* L.); white sweet clover (*Melilotus alba* Desr.); soybean (*Glycine max* Piper); white lupine (*Lupinus albus* L.); crimson clover (*Trifolium incarnatum* L.); alsike clover (*T. hybridum* L.); black medick (*Medicago lupulina* L.); and Gladiolus.

Fig. 1. Bean yellow mosaic symptoms on leaves of Gladiolus.

WHITE BREAK MOSAIC

The white break mosaic disease in gladiolus is caused by one or more strains of the cucumber mosaic virus (4). The most typical symptoms occur on the flowers which have white or yellowish blotches accompanied by crinkling, shrinking, and other flower deformations (Fig. 2). Symptoms appear on the leaves the second season after infection as small chlorotic squares between two leaf veins. The spots may be gray, yellow, brown, or reddish, according to Forsberg (4). Host range (5) includes larkspur (*Delphinium consolida* L.); water-cress (*Nasturtium officinale* R.Br.); viola (*Viola cornuta* L.); buckwheat (*Fagopyrum esculentum* Gaertn.); pokeweed (*Phytolacca americana* L.); spinach (*Spinacia oleracea* L.); pigweed (*Amaranthus retroflexus* L.); geranium (*Pelargonium hortorum* Bailey);



cucumber (*Cucumis sativus* L.); muskmelon (*Cucumis melo* L.); pumpkin (*Cucurbita pepo* L.); squash (*Cucurbita maxima* Duchesne); watermelon (*Citrullus vulgaris* Schrad.); wild cucumber (*Micrampelis lobata* [Michx.] Greene); crown of thorns (*Euphorbia milii* Ch.); cowpea (*Vigna sinensis* Endl.); lupin (*Lupinus angustifolius* L.); celery (*Apium graveolens* L.); periwinkle (*Vinca minor* L.); milkweed (*Asclepias syriaca* L.); china aster (*Callistephus chinensis* Nees.); zinnia (*Zinnia elegans* Jacq.); lobelia (*Lobelia cardinalis* L.); tobacco (*Nicotiana tabacum* L.); tomato (*Lycopersicon esculentum* Mill.); pepper (*Capsicum annum* L.); wild wandering Jew (*Commelina nudiflora* L.); **lily** (*Lilium longiflorum* Thunb.); banana (*Musa sapientum* L.); and corn (*Zea mays* L.).

Fig. 2. Gladiolus flowers showing white to yellow blotches on the petals.

Literature Cited

1. Berkeley, G. H. 1953. Some viruses affecting gladiolus. *Phytopathology* 43:111-115.
2. Brierley, P. 1952. Evidence on the significance of cucumber mosaic and tobacco ringspot viruses in gladiolus. *USDA, Plant Dis. Repr.* 36(2):48-50.
3. Bridgmon, G. H., and J. C. Walker. 1952. Gladiolus as a virus reservoir. *Phytopathology* 42:65-70.
4. Forsberg, J. L. 1963. Diseases of ornamental plants. Illinois Univ. Coll. Agr., Spec. Publ. No. 3, Urbana, Illinois.
5. Smith, K. M. 1957. A text book of plant virus diseases. Little, Brown and Co., Boston, p 64-69.