



Nora Catlin
nora.catlin@cornell.edu



Margery Daughtrey
mld9@cornell.edu

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Chili Pepper Mild Mottle Virus (CPMMoV)

CPMMoV can cause mottling, flower break, necrotic spots, and/or general stunt and is being seen on calibrachoa this season. Similar to tobacco mosaic virus (TMV), CPMMoV can be spread by handling.

There is a new virus to be worried about: chili pepper mild mottle virus (CPMMoV). CPMMoV has been found on calibrachoa this season.

Symptoms on calibrachoa include mild or bright yellow mottling (irregular yellow areas bordered by green tissue), flower break (irregular flower color patterns), necrotic spots, and/or general stunt.

Little is currently known about this virus, but we do know that it is classified as a tobamovirus and is related to tobacco mosaic virus (TMV). Similar to TMV, CPMMoV can spread easily via workers' hands and tools. CPMMoV is not spread by insects.



Flower break symptom of CPMMoV
(Photo courtesy of Elise Lobdell)

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Since the host range of CPMMoV is not yet well defined, you should err on the side of caution and assume that additional plants are susceptible, and you should treat this virus as you would treat TMV in your greenhouse. Be especially watchful of other plants in the Solanaceae; plants in this family include petunia, nicotiana, browallia, datura, pepper, tomato, and eggplant. Note that if you are growing transplants for local farmers, the CPMMoV is a potential threat to some of their most important crops.

Tobamoviruses in general are known to be more stable outside their plant hosts than most other viruses, so you should assume that the particles of CPMMoV would be as well—meaning that surfaces such as doorknobs, steering wheels, benches, and other objects that have been handled after infected plants can harbor virus particles. They are much more long-lasting than Covid-19 particles.

If you see symptoms of this virus, or you know that you have received plants that have this virus, you should use strict sanitation practices. Avoid handling infected plants prior to handling healthy plants. Be sure to have a program of sanitizing workers' hands and tools to minimize potential spread between plants during transplant and during other handling tasks. Rogue and discard infected plants—carefully—and make sure to clean and sanitize the work and growing surfaces as well as workers' hands after handling calibrachoa. Have workers wear disposable gloves, and provide them with wash stations including soap and water plus disposable paper toweling.



Symptoms of mottle caused by CPMMoV on calibrachoa leaves
(Photo courtesy of Sandra Jensen)



Symptoms of mottle caused by CPMMoV on calibrachoa leaves
(Photo courtesy of Elise Lobdell)



Necrotic spot symptom of CPMMoV on calibrachoa
(Photo courtesy of Sandra Jensen)

Disinfest contaminated tools and surfaces with a bleach solution (a 10% solution, 1 part bleach:9 parts water, is effective with a 6% sodium hypochlorite bleach; adjust if your product has a higher or lower concentration of active ingredient) or a solution of a product such as 2% Virkon S (following all label directions).

A 20% solution of milk is often recommended as an effective product to disinfest tools and surfaces during TMV outbreaks; however, whether or not milk formulations will be as effective against this particular tobamovirus is unknown. While a milk solution has been shown to be effective as a disinfectant for TMV and some other tobamoviruses, one recent study showed that a 10% milk solution was ineffective against the tobamoviruses tomato brown rugose fruit virus (ToBRFV) and cucumber green mottle mosaic virus (CGMMV) (note that the 10% in this study is lower than the usual 20% concentration of nonfat dried milk used to inactivate TMV).

Some good news is that CPMMoV will cross-react with TMV test strips, so TMV test strips can be used to diagnose this virus and to confirm an infection. Even though you will not know exactly which tobamovirus is present in the tissue, a positive test indicates that you have a plant that should be carefully discarded, along with others that have similar symptoms.



Symptoms of flower break and mottle caused by CPMMoV on calibrachoa leaves (Photo courtesy of Elise Lobdell)



Symptoms of mottle caused by CPMMoV on calibrachoa leaves



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CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell Cooperative Extension
Suffolk County
nora.cattin@cornell.edu

Dr. Chris Currey
Assistant Professor of Floriculture
Iowa State University
ccurrey@iastate.edu

Dr. Ryan Dickson
Greenhouse Horticulture and
Controlled-Environment Agriculture
University of Arkansas
rvand@uark.edu

Thomas Ford
Commercial Horticulture Educator
Penn State Extension
tf2@psu.edu

Dan Gilrein
Entomology Specialist
Cornell Cooperative Extension
Suffolk County
dos1@cornell.edu

Dr. Chieri Kubota
Controlled Environments Agriculture
The Ohio State University
kubota.10@osu.edu

Heidi Lindberg
Floriculture Extension Educator
Michigan State University
wolleage@anr.msu.edu

Dr. Roberto Lopez
Floriculture Extension & Research
Michigan State University
rlopez@msu.edu

Dr. Neil Mattson
Greenhouse Research & Extension
Cornell University
neil.mattson@cornell.edu

Dr. W. Garrett Owen
Greenhouse Extension & Research
University of Kentucky
wowen@uky.edu

Dr. Rosa E. Raudales
Greenhouse Extension Specialist
University of Connecticut
rosa.raudales@uconn.edu

Dr. Alicia Rihn
Agricultural & Resource Economics
University of Tennessee-Knoxville
arihn@utk.edu

Dr. Debalina Saha
Horticulture Weed Science
Michigan State University
sahadeb2@msu.edu

Dr. Beth Scheckelhoff
Extension Educator - Greenhouse Systems
The Ohio State University
scheckelhoff.11@osu.edu

Dr. Ariana Torres-Bravo
Horticulture/ Ag. Economics
Purdue University
torres2@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
bwhipker@ncsu.edu

Dr. Jean Williams-Woodward
Ornamental Extension Plant Pathologist
University of Georgia
jwoodwar@uga.edu

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