

Screening Pitahaya/Dragon Fruit Accession for Cactus Virus X (CVX)

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Background, Materials & Methods

- Virus symptoms first observed in at South Coast REC in early 2011
- CVX presence confirmed by local grower in San Diego in late 2011
- 54 plant samples analyzed for CVX presence using PCR (90 % tested positive)
- Additional 200 samples collected and analyzed using ELISA test (~ 85 % positives)

Viruses of Cacti and Succulents

- **Difficult to work with due to gelatinous tissue**
- **Distribution of viruses can be uneven in plants**
- **Not a lot of research on these plant hosts**

Viruses of Cacti and Succulents

Cactus virus X

- **Infects many species in *Cactaceae*: *Cereus*, *Saguaro*, *Opuntia*, *Zygocactus* and *Hylocereus***
- **Found worldwide, with 3 main strains known to date**
- **Symptoms range from none to distorted areoles, deformed spines, necrosis, mottling**
- **Transmitted by grafting, mechanical, plant contact**
- **NOT transmitted by seed; NO known vector**
- **Found in all plant parts including buds, flowers and fruit**
- **Relatively high infection levels in most hosts!!**

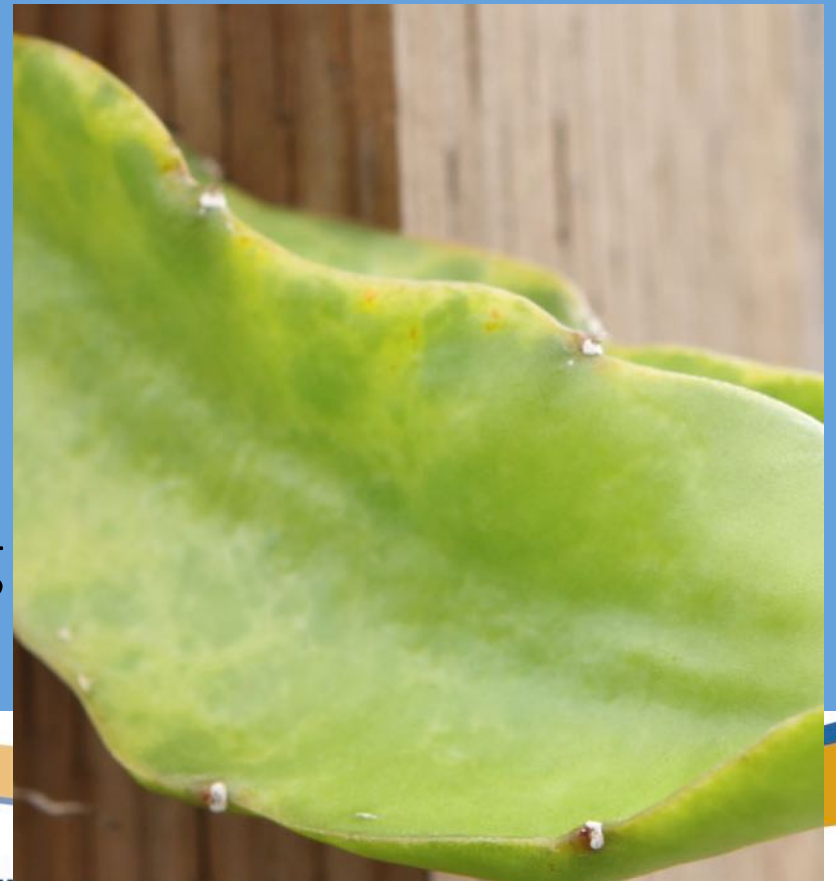
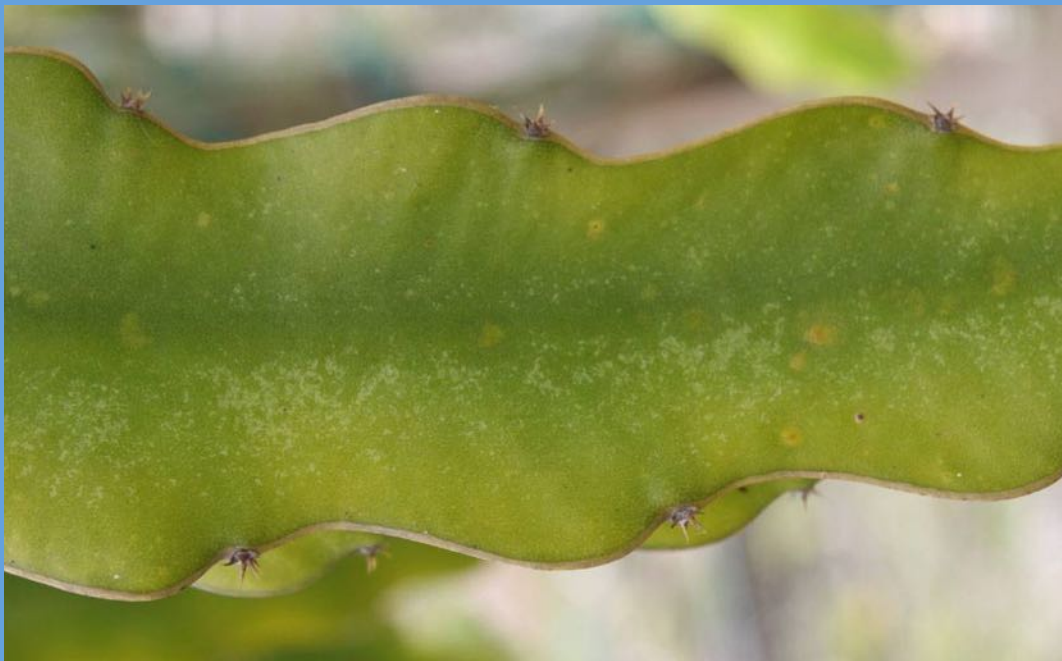
Cactus virus X on Hylocereus (Dragon Fruit)

Stunting:

- Plant does not show any activity
- No shoots or flowers
- Stems tend to enlarge
- Plants turn dark/dull green color



Cactus virus X on Hylocereus (Dragon fruit)



Chlorosis and Mottling

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Twisting of arms

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Cactus virus X on Hylocereus (Dragon fruit)



Avoidance/Testing Protocols

- **Scout routinely for symptoms**
- **Isolate particularly susceptible varieties**
- **Eliminate hosts outside GH, weeds, landscape plants**
- **Regular testing for most common pathogen/host combos**
- **Collect younger leaves, with symptoms if available**

Management

- **No “cure”**
- **Destroy infected stock**
- **Avoid mechanical transmission: handling, tools, pots, remove plant debris**
- **Decontaminate tools and surfaces with bleach, quaternary ammonium, chlorhexidine, etc (follow labels)**