

What is your Diagnosis? From the Insect and Plant Disease committee

This desert tobacco leaf (*Nicotiana obtusifolia*) shows typical symptoms caused by:

- a. a fungus
- b. insect damage
- c. herbicide toxicity
- d. a virus

Answer: if you selected a virus you would be correct.

Notice the mosaic pattern on the leaf that is typical of Tobacco Mosaic Virus (TMV). TMV commonly affects tobacco plants and other members of the Solanaceae, and over 300 different plant species. This RNA virus is spread most commonly from plant to plant on gardener's hands, clothing or on tools.



Although some of the symptoms on the leaf can look like those caused by sucking insects, mineral deficiencies and herbicides, TMV has some distinctive features: distinct yellowing only of the leaf veins, green or green and yellow mottling (mosaic) areas, and malformation of the leaves and new growth. TMV cannot be diagnosed on the basis of symptoms alone and requires laboratory confirmation. Since there is no treatment for the virus it is best to remove the entire diseased plant.



This abnormal growth with black spotting on the stems was found on the common milkweed vine (*Funastrum cyanochroides*).

Your diagnosis:

- a. mistletoe
- b. mite gall
- c. witches' broom
- d. plant parasite.

Answer: if you answered witches' broom or plant parasite you would be on the right track!

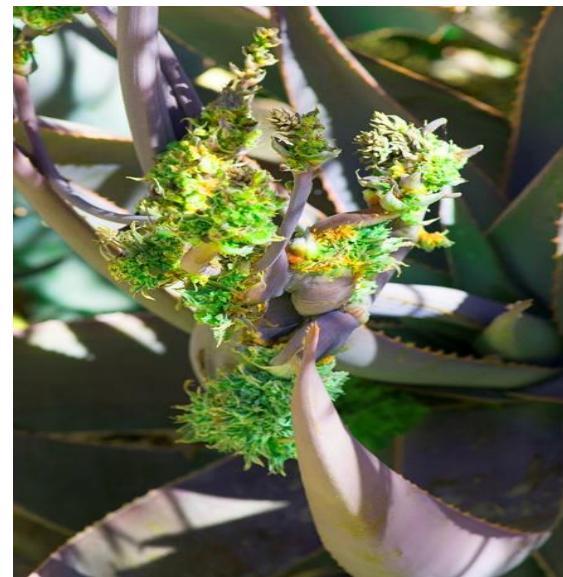
However, the black spotting on the stem that can be scrapped off is a Rust fungus. Rust fungi (of which there are hundreds of species) are obligate parasites requiring living plant tissue for growth and reproduction. In this case the rust has apparently caused aberrant growth of the milkweed vine to produce a "witches' broom." There are numerous causes, including rust (*Gymnosporangium* and *Pucciniastrum*); *Apiosporina*, *Exobasidium*, and *Taphrina* fungi; mites; insects; viruses; mycoplasmas; bacteria; and mistletoes. In this case, selective pruning of the affected parts of the vine is the best way to manage and control the witches' broom.

The flower spike of this aloe is deformed and appears to have vegetative growth instead of flowers.

The symptoms you see are most likely caused by:

- a. a fungus
- b. mistletoe
- c. a virus
- d. mites

Answer: If you chose mites, you are correct!



Some species of aloe can be infected by the microscopic eriophyid mite (*Aceria aloinis*). Eriophyid mites are microscopic arachnids measuring less than 0.25 mm long. They have piercing/sucking mouthparts, which they use to extract plant nutrients and inject toxins that cause abnormal plant growth. The mites are easily spread by wind, water, insects and possibly contaminated pruning tools. Generally, it is best to dispose of the infected plant to prevent spreading infection to adjacent aloes. However, the mites can be effectively controlled by removing the affected abnormal growth, and treating the aloe plant with specific miticides such as Carbaryl.

References

<http://extension.psu.edu/pests/plant-diseases/all-fact-sheets/tobacco-mosaic-virus-in-greenhouses>

<https://www.britannica.com/science/witches-broom>

http://capca.com/assets/pdf/Turf/Eriophyid_Mite_Control_JBethke_Feb2015.pdf

Curative and Preventive Control of *Aceria aloinis* (Acari: Eriophyidae) in Southern California. J Econ Entomol. 2014 Dec;107(6):2088-94.

Photos/A.Knight



12/2016