Please help us obtain samples of downy mildew on cucurbit crops

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Cucurbits are members of the gourd family (*Cucurbitaceae*), which includes popular crops such as cucumber, pumpkin, squash, melon and watermelon. Downy mildew of cucurbits is a destructive foliar disease caused by a fungus-like oomycete pathogen *Pseudoperonospora cubensis*. To move this research project forward, we need to collect diseased samples from across the state of Hawaii. Our recent attempts at collecting samples from Oahu farms has not been successful. Therefore, we would like to bring this pathogen to your attention and hope to obtain assistance in identifying where this disease is occurring.

Symptoms on cucumber, pumpkin and squash typically consist of angular, yellow spots limited by the leaf veins (Fig. 1A). As the disease progresses, the yellow spots become necrotic or brownish in the center (Fig. 1B). During the later stage, the lesions enlarge and coalesce, resulting the leaf curled up and eventually dead (Fig. 1C). On the underside of the diseased leaf, a purplish grey downy, fuzzy growth may be visible when there is high relative humidity or moist conditions (Fig. 1D). Under microscope, the downy substances are observed as dichotomously branched sporangiophores with lemon-shaped sporangia (Fig. 1E).

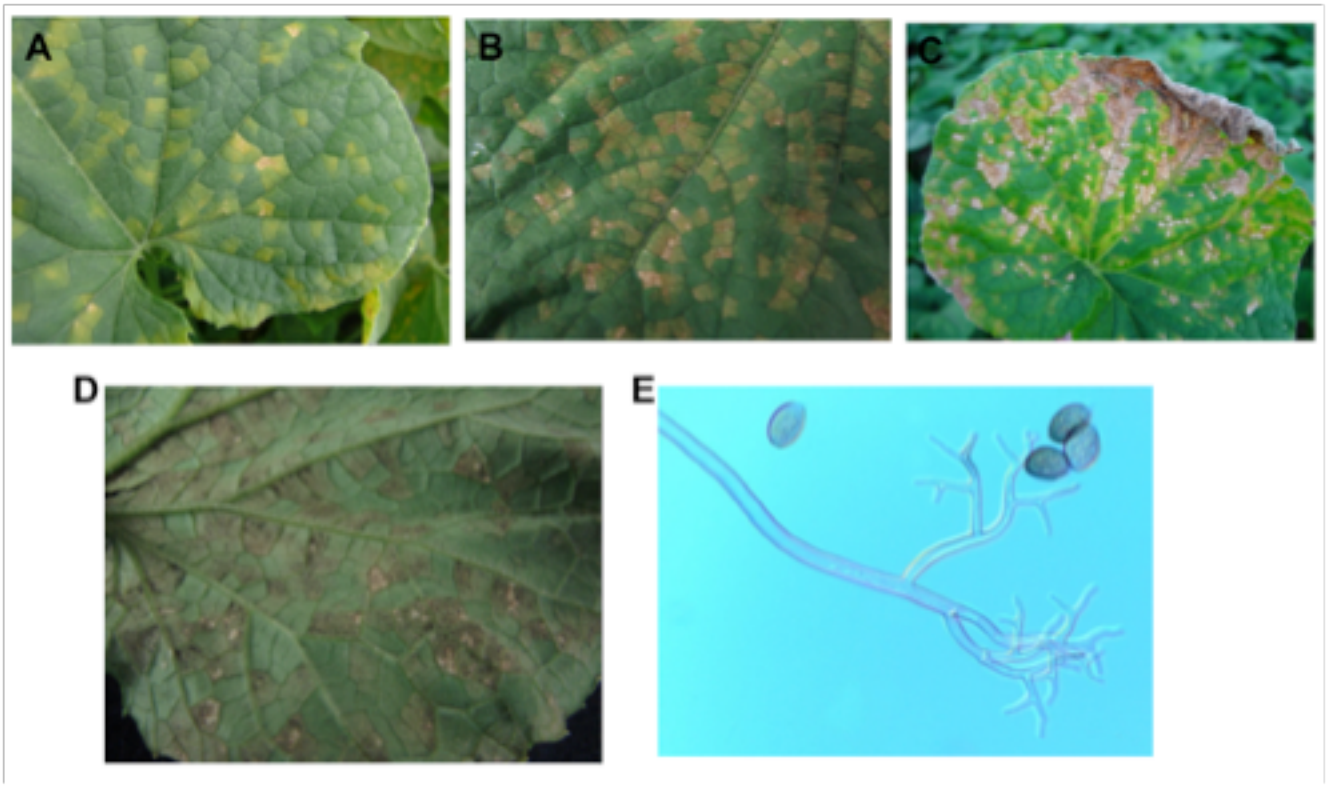

Fig 1. Symptoms and signs of downy mildew on cucumber leaves.
Photo credit: http://www.apsnet.org/edcenter/intropp/lessons/fungi/Oomycetes/Pages/Cucurbits.aspx

Symptoms on watermelon and cantaloupe are irregular shaped lesions on the leaves that turn brown rapidly (Fig. 2). These symptoms are not as distinctive as on cucumber and are more easily mistaken for other foliar diseases. Microscopic observation of the sporulation is the way to identify it.

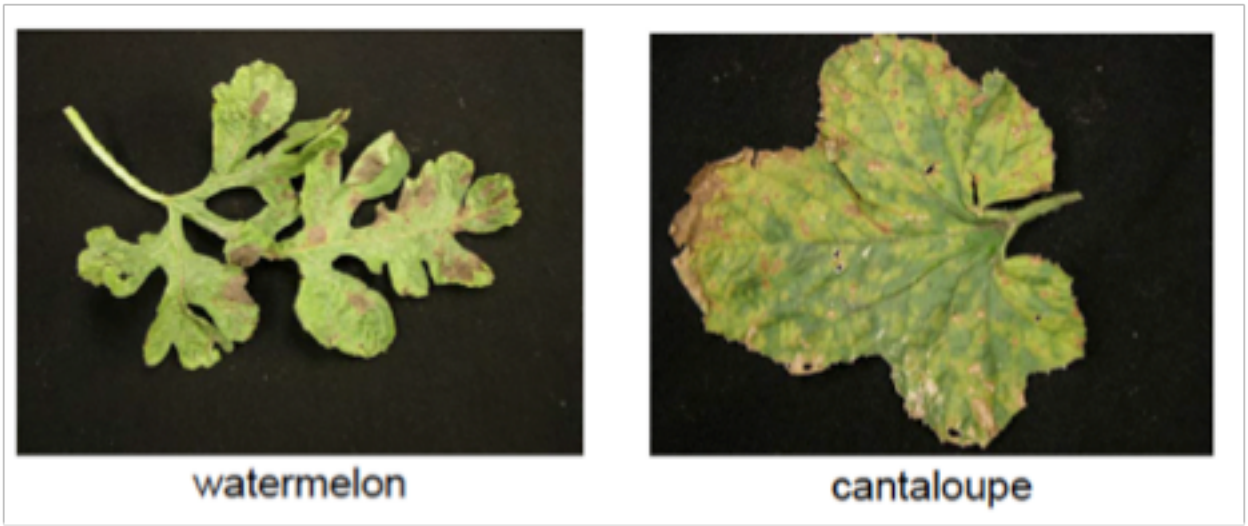

Fig. 2. Symptoms of downy mildew on watermelon and cantaloupe.
Photo credit: http://msue.anr.msu.edu/news/managing_cucurbit_downy_mildew_in_your_garden

If you suspect your cucurbit plants to have the downy mildew symptoms as explained above, please feel free to contact Dr. Miaoying Tian (mtian@hawaii.edu, Phone: 808-956-5305, 3190 Maile Way, St. John 317, Honolulu, HI 96822) or Jari Sugano (SuganoJ@ctahr.hawaii.edu, Phone (808) 622-4185 of the Department of Plant and Environmental Protection Sciences, University of Hawaii at Mānoa. Please send a digital photo to confirm the pathogen to mtian@hawaii.edu. Dr. Tian will provide instructions on how to prepare samples for shipment or pick up.

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