

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES



Powdery Mildew of Mirliton

Podosphaera xanthii (Castagne) U. Braun and S. Takam

Mirliton (*Sechium edule*), a native of Mexico and Central America, is a perennial cucurbit grown worldwide. In the United States, it is also known as chayote or vegetable pear. In this country, its production is largely confined to Hawaii and Louisiana, where it is a traditional staple of New Orleans cuisine.

Mirliton is mainly cultivated for its fruits, but its stems, young leaves and tuberous roots are also edible. Mirliton fruit is rich in carbohydrates and amino acids and is well known for its medicinal uses. Mirliton is a warm-season crop and grows well in well-drained soils high in organic matter.

Like other members of cucurbitaceae, mirlitons are susceptible to a common fungal disease called powdery mildew. Mirliton powdery mildew is caused by *Podosphaera xanthii*.

The symptoms of mirliton powdery mildew differ significantly from those of other cucurbit powdery mildews, however. Powdery mildew on other cucurbits can be easily recognized by the presence of white, powdery fungal colonies on both leaf surfaces and



Figure 1. Irregular yellow spots on upper surface of mirliton leaf caused by *Podosphaera xanthii*.



Figure 2. Irregular yellow spots on lower surface of mirliton leaf caused by *Podosphaera xanthii*.

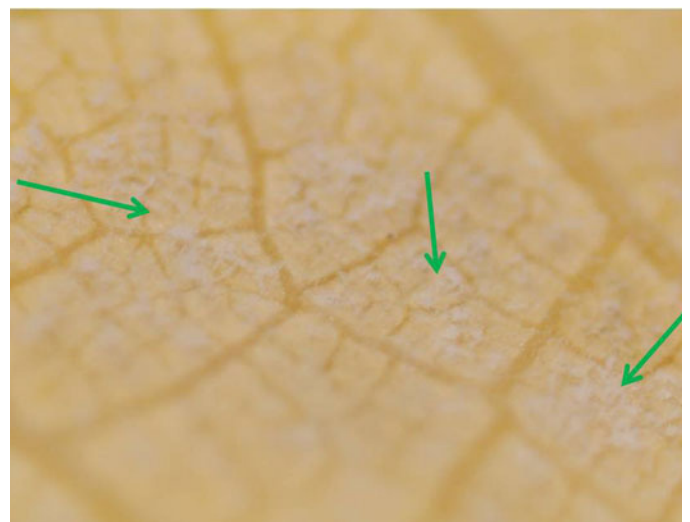


Figure 3. White, powdery colonies on lower surface of mirliton leaf caused by *Podosphaera xanthii*.

other aboveground plant parts including stems and petioles. In contrast, the white powdery fungal growth on mirliton leaves is not obvious during early stages of disease development.

Initial symptoms of mirliton powdery mildew include irregular yellow spots on both surfaces of the leaves (Figures 1 and 2). White, cottony mycelial colonies (Figure 3) appear first on the lower surface of a leaf with no signs of the fungus on the upper surface of the leaf. As the disease progresses, white cottony colonies develop on the upper surface of the leaf, as well. Conidia and conidiophores may be observed on the lower surface of these spots using a microscope (Figure 4). The spots eventually coalesce, and the entire leaf turns yellow and then necrotic (Figure 5). Necrotic leaves stay attached to the vine.

Podosphaera xanthii is an obligate biotrophic parasite, which means it requires a living host to complete its life cycle. Windborne spores serve as a primary source of inoculum and may travel long distances. Infected leaves that stay attached to the vine may serve as a secondary source of infection to healthy leaves on the same or other vines in the vicinity.

Periods of high humidity and low light intensity favor infection and conidial survival. Dry conditions favor colonization, sporulation and spore dispersal. Favorable temperatures for disease development range from 68-81 F. Mirliton powdery mildew develops rapidly under favorable conditions and may cause yellowing and necrosis of leaves eight to 12 days after infection. Temperatures higher than 100 F may adversely affect disease development.

The effective management of mirliton powdery mildew requires an integrated approach of good cultural practices in addition to fungicides. Recommended cultural practices include removal of infected plant material, weed hosts and crop residues from the previous crop. Also, plant mirlitons in sunny locations and avoid overcrowding of vines. Manage irrigation and avoid high humidity conditions. Homeowners may use potassium bicarbonate or sulfur to manage mirliton powdery mildew.



Figure 4. *Podosphaera xanthii* conidiophore bearing conidia in chains; Inset shows individual conidia.



Figure 5. Irregular yellow spots caused by *Podosphaera xanthii* coalesce, and the entire leaf turns yellow.

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