

Papaya phytoplasmas (174)

Summary

- Worldwide distribution. The distribution is unclear because the taxonomy of the phytoplasma has not been resolved. On papaya. Important diseases. In Australia, for instance, there are diseases by the names papaya dieback, yellow crinkle, and mosaic, and one called bunchy top in the Caribbean.
- In general, young leaves turn yellow, bunch, dry, die and fall. Papaya dieback shows a slight bending of petioles and the top of stem leading to rapid death; yellow crinkle is like mosaic: most leaves die except for a stunted few at the top.
- Spread possibly by leafhoppers that migrate from weeds.
- Cultural control: remove infected trees, or ratoon diseased trees to see if recovery occurs. Check varieties for tolerance.
- Chemical control: apply systemic insecticide, but combine with removal or ratooning of diseased trees.



Photo 1. Bunched crown leaves on stem of tree in New Caledonia. The leaves just beneath the crown are starting to dry out at the margins.

Common Name

There are several strains of phytoplasma involved in these diseases and they have a number of names, e.g., papaya dieback disease, yellow mottle, mosaic and papaya bunchy top.

Scientific Name

The severe papaya dieback disease, which occurs in Australia, is known as *Candidatus Phytoplasma australiense*. This disease is related to or the same as *Australian grapevine yellows* and *Phomium yellow leaf* (*Phomium* is known as New Zealand flax). A disease on papaya with similar symptoms occurs in New Caledonia¹. It is not known if this is caused by *Candidatus Phytoplasma australiense*. However, this phytoplasma is recorded from New Caledonia, in strawberry.



Photo 2. Young yellow leaves growing at an angle due to bending of the stem tip. Moindou, New Caledonia.



Photo 3. Young yellow leaves growing at an angle due to bending of the stem tip. Moindou, New Caledonia.



Photo 4. Young yellow leaves growing at an angle due to bending of the stem tip. Moindou, New Caledonia.



Photo 5. Slight bending of the shoot tip, and bunching of young leaves. Moindou, New Caledonia.

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¹Identified on symptoms by Professor Rob Harding, Science, Environmental and Biological Sciences, QUT, Queensland, at Moindou village, New Caledonia, 2003. Information from Guthrie JN (1998) Epidemiology of Phytoplasma-Associated Papaya Diseases in Queensland, Australia. Plant Disease 82(10): 1107-1111. (<https://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS.1998.82.10.1107>); and from CABI (2020) *Candidatus phytoplasma australiense*. Invasive Species Compendium. (<https://www.cabi.org/isc/datasheet/39956>). Photo 1 Köhler F, et al. (1997) *Diseases of cultivated crops in Pacific Island countries*. South Pacific Commission. Pirie Printers Pty Limited, Canberra, Australia. Information from *Diseases of fruit crops in Australia* (2009). Editors, Tony Cooke, et al. CSIRO Publishing.

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