

Pacific Pests, Pathogens and Weeds - Online edition

Breynia bunch (478)

Common Name

Breynia bunch

Scientific Name

Breynia bunch phytoplasma disease.

Distribution

Recorded from Malaita and Guadalcanal, Solomon Islands.

Hosts

Breynia cernua. The disease is only recorded on *Breynia cernua*, although other *Breynia* species are reported from Solomon Islands. *Breynia cernua* is a tree native to the Philippines, Indonesia, the southwest Pacific islands and the Northern Territory of Australia. *Breynia* species are members of the Euphorbiaceae family.

Symptoms & Life Cycle

A serious disease associated with phytoplasma seen using the electron microscope. Phytoplasmas were previously called mycoplasma-like organisms, or MLOs. They are obligate bacteria, single celled organisms that only grow in the phloem cells of plants. Phytoplasma do not have rigid walls like bacteria. They reproduce asexually by budding.

Affected trees produce flushes of diseased growth (bunches) with short internodes, small leaves and many side (axillary) shoots (Photos 1&2). The bunches occur at the ends of established shoots or as short offshoots along the main branches (Photos 3&4).

At first, bunching occurs on one or more of the lower (older) branches, while the foliage above and on other branches remains healthy. Gradually, symptoms appear on all branches throughout the tree, and there is loss of leaves on initially healthy and bunched growth (Photo 5). Eventually, dieback and death occurs. No trees have been seen to recover or produce fresh foliage.

Phytoplasmas (Photo 6) are spread by phloem-feeding insects, leafhoppers, planthopper and psyllids. However, no candidates that might spread Breynia bunch have been identified.

Impact

The disease is of little or no economic importance. Although the tree has wood that is hard, it is not used commercially; however, some *Breynia* species have variegated and attractive leaves and are used as garden ornamentals.

Detection & inspection

Look for shoots with small leaves and side-shoot development giving a 'bunchy' appearance of foliage along the branches. Look for dieback and early death of the trees.

Management

CULTURAL CONTROL

There is no information on the rate of spread of the disease, but in north Malaita and also in Honiara where the disease is common, it is likely to be rapid. In these places, removal of trees once they show symptoms may be an approach worth trying.

CHEMICAL CONTROL

Injection or foliar sprays of tetracycline may bring about a return to healthy growth (remission of symptoms), but would likely only be considered if the tree were of exceptional value, e.g., it were an ornamental. Treatment would need to be repeated and costly.

It can be assumed that an insect is spreading the disease, possibly a leafhopper, planthopper or psyllid. Therefore, to prevent spread before removing the tree or trees, spray with an insecticide. An appropriate choice would be pyrethrum or a synthetic pyrethroid.

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval.

Recommendations will vary with the crop and system of cultivation. Expert advice on



Photo 1. Breynia bunch on lower parts of a branch of *Breynia cernua* showing the exceptional branching and little leaf symptoms typical of infection.



Photo 2. Breynia bunch on *Breynia cernua* at an early stage where it is confined to some branches only.



Photo 3. *Breynia cernua* with severe symptoms of Breynia bunch on all branches.



Photo 4. Defoliation and dieback of *Breynia cernua* with Breynia bunch phytoplasma disease.

the most appropriate pesticides to use should always be sought from local agricultural authorities.



Photo 5. Close-up of stems on *Breyניה cernua* with Breyניה bunch showing weak branching shoots and small light green leaves, some of which appear to have died.

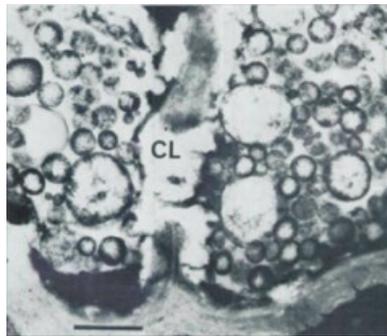


Photo 6. Rounded phytoplasma cells in two sieve cells of the phloem from leaves with Breyניה bunch. (CL is callus between the two cells.)

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Information (and Photo 6) from Dabek AJ, Jackson GVH (1977) Association of mycoplasma-like organisms with Breyניה bunch, a newly discovered disease on Malaita, Solomon Islands. *Phytopath. Z.* 90:132-138. JPM Brenan, Royal Botanic Gardens, Kew, UK, is acknowledged for the identification, distribution and economic significance of *Breyניה cernua*.

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