

BANANA BRACT MOSAIC DISEASE

J E Thomas and L V Magnaye (December 1996)

Banana bract mosaic disease was first noted in 1979 in the Philippines, at Davao on the island of Mindanao. It has subsequently been shown to be widespread throughout the Philippines and to also occur in India, Sri Lanka, Vietnam and Western Samoa.

A potyvirus, banana bract mosaic virus (BBrMV), has been isolated from infected plants and is assumed to be the causal agent. There are no reports of mechanical transmission of BBrMV, but the virus is transmitted in a non-persistent manner by several aphid species, including *Aphis gossypii*, *Pentalonia nigronervosa* and *Rhopalosiphum maidis*. BBrMV is also transmitted in vegetative planting material including "bits", "suckers" and tissue cultured plantlets, but it is not soil-borne. It is unlikely to be spread on knives or through handling.

The symptoms of banana bract mosaic disease are usually very distinctive. The characteristic dark reddish-brown mosaic pattern on the bracts of the inflorescence distinguish this disease from all other known virus diseases of banana. Initial symptoms include green or reddish-brown (depending on cultivar) streaks or spindle-shaped lesions on the petioles, and a tendency towards a congested leaf arrangement. Leaf lamina symptoms may or may not occur and are most prominent on the younger leaves in recent infections. If present, the symptoms consist of spindle-shaped chlorotic streaks running parallel to the veins. When the dead leaf sheaths are pulled away from the pseudostem, distinctive dark-coloured mosaic patterns, stripes or spindle-shaped streaks are visible. Chlorotic streaks may occur on the bunch stalks and high disease incidence is associated with increased levels of fruit rejection on commercial plantations. BBrMV occurs on a wide range of banana genotypes and is especially widespread in the varieties Cardaba (ABB/BBB), Saba (BBB) and Abuhon (BB). Yield losses of up to 40% in cv. Cardaba and cv. Lakatan (AA) have been recorded in the Philippines.

The symptoms of Kokkan disease of cv. Nendran (AAB 'French Plantain') in India are the same as those described for banana



Reddish-brown mosaic pattern on the bracts of the inflorescence

bract mosaic, and BBrMV has been detected in these plants. The virus has also been detected in plants of Embul (AAB 'Mysore') with the same disease symptoms in Sri Lanka.

The symptoms caused by BBrMV may be difficult to detect in non-bunching plants in the field. Leaf and petiole symptoms may be inconspicuous at best (or absent) and in the absence of the bracts the only symptoms may be those on the pseudostem, covered by the dead outer leaf sheaths. Recently, BBrMV has been detected in some plants from India, Vietnam and Western Samoa with cucumber mosaic virus-like symptoms and lacking the typical mosaic pattern on the bracts of the inflorescence. Using microscopic and serological tests, the virus has also been found in completely symptomless plants. Detection of BBrMV is possible using ELISA, cDNA probes and PCR techniques.

INIBAP is collaborating with Dr J E Thomas (Plant Protection Unit, DPI, 80 Meiers Road, Indooroopilly, Q 4068 Australia - e-mail: thomasje@dpi.qld.gov.au), Ms L V Magnaye (Bureau of Plant Industry, Davao, Philippines - e-mail: banphil@dv.webling.com) and Dr M L Iskra-Caruana (CIRAD-FLHOR, Virologie, BP 5035, 34032 Montpellier Cedex 1, France - e-mail: caruana@cirad.fr), to establish the distribution of BBrMV and to refine detection systems for the virus. **Your help is needed.** INIBAP requests that leaf samples from plants suspected of being infected with BBrMV be sent to Dr Thomas or Dr Iskra-Caruana, wrapped in slightly damp paper towelling or newspaper and sealed in a paper bag. A courier company is preferable to the postal service.



Mosaic and spindle-shaped lesions on the pseudostem



Chlorotic spindle-shaped lesions on the leaf lamina

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