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3. Root wilt or Kerala wilt

Cause

A non-cultivable mollicute, formerly referred to as mycoplasma-like organism (MLO).

Symptoms

Symptoms are only obvious in palms that are more than 30 months old. The most consistent and diagnostic symptom is the characteristic bending of the leaflets called 'flaccidity'. In older palms, yellowing and marginal necrosis of the older leaves also develops. Roots of diseased palms show degenerated phloem, disorganized tracheal elements and tylosis in the metaxylem. They eventually rot. Inflorescence necrosis develops in some cases. The disease is not lethal, but significantly reduces production.

Natural host range

Only known from *Cocos nucifera* L.

Geographical distribution

India (parts of Kerala and Tamil Nadu States).

Transmission

The lace bug *Stephanitis typica* (Distant) is a vector (Mathen *et al.*, 1990). *Proutista moesta* (Westwood) is a putative vector (Rajan & Mathen 1985; Anonymous, 1989). There is no evidence of seed transmission. Symptoms develop 9 to 24 months after inoculation.



Fig. 12. Palm tree affected by root wilt. (Dr. J.J. Solomon, Central Plantation Crops Research Institute, Krishnapuram, Kerala)

Therapy

No efficient method is available. Tetracycline antibiotics give temporary remission of symptoms, but do not eliminate the non-cultivable mollicute from the plants.

Indexing

No reliable indexing method is available. It may be possible to detect non-cultivable mollicutes in suspect material by electron microscopy, fluorescence staining (DAPI), Dienes' staining or serological tests, but these techniques are not reliable enough for indexing.

Quarantine measures

As for lethal yellowing.

References

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4. Tatipaka disease

Cause

Probably a non-cultivable mollicute, formerly referred to as mycoplasma-like organism (MLO).

Symptoms

Reduction in number and size of leaves, fasciation, leaves become light green and develop chlorotic spots. Abnormal bending of fronds, tapering of stem and production of small-sized inflorescences bearing atrophied empty nuts can also occur.



Fig. 13. Palm tree affected by Tatipaka disease (Dr. J.J. Solomon, Central Plantation Crops Research Institute, Krishnapuram, Kerala)

Natural host range

Only known from *Cocos nucifera* L.

Geographical distribution

India (East and West Godavari, Srikakulam and Nellore districts in Andhra Pradesh).

Transmission

Unknown.

Therapy

No efficient method is available. Tetracycline antibiotics give temporary remission of symptoms, but do not eliminate the non-cultivable mollicute from the plants.

Quarantine measures

As for lethal yellowing.

References

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Fungal diseases**1. Bole rot, shoot rot and other *Marasmiellus* diseases****Cause**

Marasmiellus cocophilus Pegler and *M. inoderma* (Berk.) Singer (syn. *Marasmius palmivorus*). The role of *M. cocophilus* as a primary pathogen of coconut has been questioned and predisposing factors, including other diseases, may be involved in the disease's etiology.

M. albofuscus, *M. crinisequi* and *Rigidoporus zonalis* have also been associated with coconut.

Symptoms

M. cocophilus is associated with a lethal bole rot of seedlings and young palms in eastern Africa. Leaves wilt, become yellow and bronze, and, on mature palms, remain attached as a 'skirt' around the trunk. The spear leaf dies and a foul-smelling soft rot develops at the base of the leaves and spathes. A reddish dry