

EVIDENCES TOWARDS A MYCOPLASMAL ETIOLOGY FOR
THE ROOT(WILT) DISEASE OF COCONUT IN INDIA

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Root (wilt) disease was recognised as a malady of coconut in South India following the great floods of 1882. The disease is now prevalent in over 410,000 ha and causes an annual loss of about 968 million nuts. The diagnostic symptom of the disease is the flaccidity of leaflets. Extensive studies to determine the cause of the malady have failed to attribute any role of fungi, nematodes, bacteria viruses and viroids. The involvement of any soil, nutritional or physiological factor has also been eliminated. Recent ultra-structural studies have revealed the presence of mycoplasma-like organisms (MLOs), exclusively confined to sieve tubes of symptomatic palms. Intensive EM studies have now established the constant association of MLOs with the root (wilt) diseased palms. MLOs have never been encountered in any of the asymptomatic palms from disease-free areas. Light microscopic techniques employing fluorochromes such as DAPI and Hoechst 33258 as well as histochemicals also could detect MLO infection in susceptible palms. MLOs have been detected in the salivary glands of two insects (Stephanitis typica and Proutista moesta). Transmission trial undertaken in insect proof cages using infective lace bugs resulted in successful transfer of MLOs to test palms, as revealed by serology, light microscopy and electron microscopy. Reproduction of characteristic flaccidity symptoms

in recipient palms has also been achieved. The disease could be experimentally transmitted to test periwinkle through dodder laurel, Cassytha filiformis. In field trials palms injected with tetracycline showed remission of symptoms.

Evidences for the integral association of MLOs, successful transmission with insects that feed and breed on coconut, remission of symptoms under tetracycline therapy favour an MLO etiology for the malady.