Detection of Mycoplasma-Like Organisms in *Proutista moesta* (Westwood) a Putative Vector of Yellow Leaf Disease of Arecanut*

The yellow leaf disease (YLD) of arecanut palms still remains as the most serious malady in Kerala and some parts of Karnataka states. Reduction in yield due to the disease is to the extent of 50 per cent, over a period of three years following disease incidence (Rawther, Radhakrishnan Nair, Saraswathy 1982). Electron microscopic examination of unexpanded rachillae of the diseased palms (Nayar and Seliskar, 1978 and Seliskar and Wilson, 1981) revealed the presence of Mycoplasma-like organisms (MLOs) in mature sieve tubes. MLOs were also consistently observed in the root tissues of diseased palms. As MLOs are generally transmitted by leaf hoppers and plant hoppers, emphasis wasgiven to identify the insects of this group as potential vectors. An inventory of insect pests revealed the presence of *Proutista moesta* on leaves of diseased palms (Nair, and Daniel, 1982). In the light of the finding of constant association of MLOs with the disease (Anonymous, 1984), the ability of this insect to acquire and sustain the multiplication of mollicutes was assessed.

Laboratory reared plant hoppers in batches of 10–15 insects were released on tender leaves of yellow leaf disease affected palms in the field and caged with nylon net bags of 60 × 30cm size. After an acquisition access period of five days the insects were transferred to the foliage of healthy areca palms and confined in similar cages for varying lengths of incubation period. Five insects each were recaptured commencing from the 10th day upto 41 days. The recaptured insects were fixed in 2.5 per cent glutaldehyde in 0.05 M Cacodylate buffer PH 7.4, containing 0.17 M Sucrose, at 4°C. The fixed insects were dissected in the fixative and the excised salivary glands were further processed–post fixed in 2 per cent Osmium tetroxide in 0.05 M Cacodylate buffer, dehydrated in alcohol and acetone series and embedded in Spurr's resin. Serial ultrathin sections of the salivary gland made in LKB Ultratome III were stained with Uranyl acetate and Reynold's lead citrate (Reynolds, 1963), and examined under Carl Zeiss EM 109.

MLOs were observed in the salivary glands of plant hoppers which were offered acquisition and incubation periods of 41, 38, 37, 36, 33, 31 and 30 days on the foliage of yellow leaf disease affected areca palms. However, such bodies were neither observed in the salivary glands of the laboratory reared insects nor in insects with acquisition and incubation periods less than 30 days. The organisms were confined to the acini of the salivary

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glands. The pleomorphic bodies had triple layered unit membrane and contained ribosomes and reticulated DNA strands. Electron dense elementary bodies were also at times found in the acini (Fig. 1). Exclusive presence of the organism in insects which were offered acquisition and incubation periods more than 30 days indicate their multiplication in the salivary glands after being acquired. However, the role of this insect as vector of the disease is being confirmed through transmission studies.

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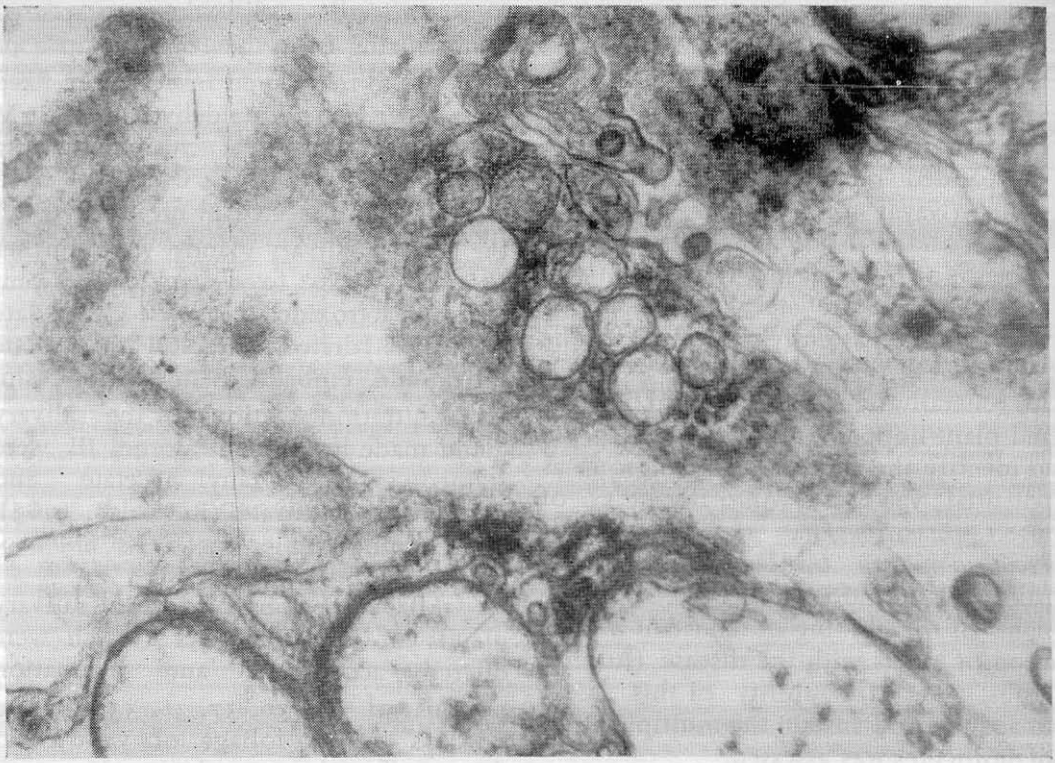

Fig 1. Mycoplasma like bodies in the salivary gland tissues of *P. moesta*

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