

LKB ultramicrotome I, were stained with 2% uranyl acetate and lead citrate<sup>6</sup>. The grids were examined on Phillips electron microscope (model 300) operated at 60kV.

The epidermal layer consisted of columnar and polarized cells and is overlaid by 1 to 5 extracellular layers deposited in orderly manner. The extracellular layers (i) contour the outer tangential walls of the epidermis; (ii) are sloughed-off periodically and (iii) are continuously replenished. The extracellular layers however, are not continuously replenished in mature receptacle epidermal cells probably due to the loss of meristematic activity.

The extracellular layers stain intensely with PAS reagent and alcian-blue and show deep-purple metachromasy with TBO. These histochemical reactions suggest that the layers consist of a mixture of alginic acid and sulphated polysaccharides. The outer tangential wall of the epidermal cell shows two differentially stained zones. The outer zone stains in the same way as the extracellular layers, and the inner zone stains moderately with PAS reagent and reddish-violet with TBO. The epidermal cells are engorged with vacuoles filled with polysaccharide granules that stain moderately with PAS reagent and reddish-violet with TBO (figures 1, 2). Histochemical reactions suggest that these granules contain alginic acid and sulphated polysaccharides. Nucleus and chloroplasts (confirmed by EM studies) are located at the basal region of the epidermal cell and they have polarized distribution.

Electron microscopic studies show the outer tangential walls of the epidermal cells to be made up of two differently oriented microfibrillar zones. In the outer zone, microfibrils are reticulate whereas in the inner are parallel. The microfibrils are interspersed with electron dense granules. The extracellular layers and the outer tangential wall of the epidermal cell is separated by space filled with microfibrils and vacuoles. Similarly the extracellular layers are also separated from one another (figure 3). The periodic sloughing-off of the extracellular layers in *Turbinaria conoides* helps the plant to keep its surface free of all epiphytic growth.

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## A NEW MYCOPLASMA DISEASE IN PEANUT (*ARACHIS HYPOGAEA* L)

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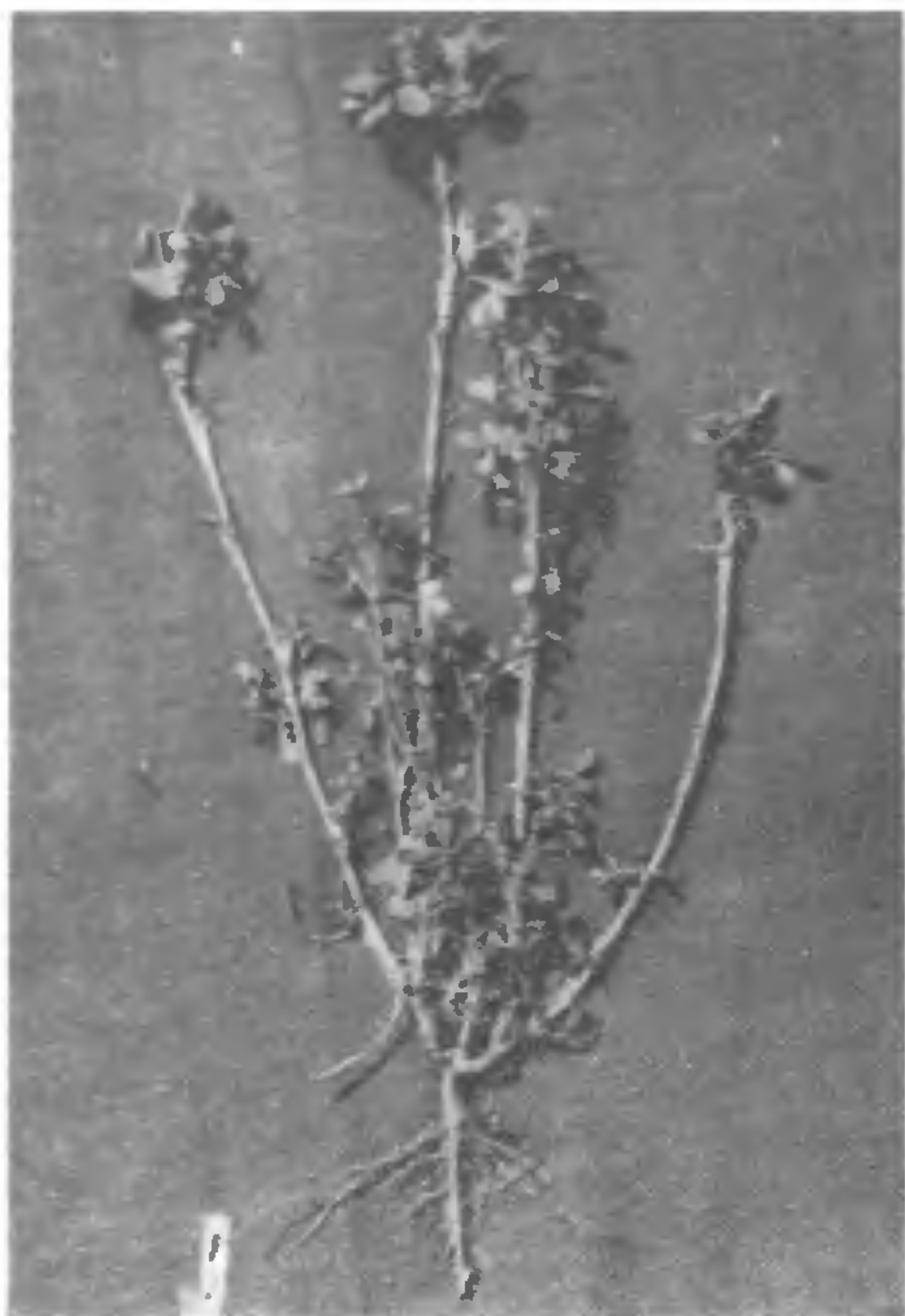
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PEANUT (groundnut) is known to be infected by many virus diseases like rosette, mosaic, chlorosis, marginal chlorosis, ringspot, ringmottle, bunchy top, bud necrosis, peanut mottle, peanut clump, peanut green mosaic virus and cowpea mild mottle virus<sup>1-6</sup>. During the survey for groundnut diseases in South Arcot district of Tamil Nadu in 1983 a new disease resembling the diseases caused by mycoplasma-like organisms was observed. The symptoms were proliferation of axillary buds, small and stunted leaves and phyllody (figure 1). Stray incidence of the disease was also observed in both *kharif* and summer of 1984.

The disease was transmitted from infected groundnut plants to healthy plants of Co-1 variety by side wedge grafting. The first symptom was observed 15 days after grafting at the basal portions of grafted shoots. Numerous branches with small leaves emerged from each axillary buds. The same was reisolated and maintained at screen house conditions. The infected groundnut plants did not produce any pods.

Remission of symptoms by the application of tetracycline compound is one of the characteristics of diseases induced by mycoplasma-like organism (MLO)<sup>7, 8</sup>. The identification of the MLO disease can also be confirmed by the chemotheraphic effect of tetracycline antibiotic on the diseased plants. In our screen house studies also, tetracycline hydrochloride at 500 ppm was sprayed on the diseased groundnut foliage. The remission of symptoms was noticed 15 days after treatment. The treated branches of the apical portion showed enlargement of leaves and normal growth as compared to untreated. In another





**Figure 1.** Infected groundnut showing the symptom of axillary proliferation and smaller leaves.

set of experiments the healthy plants were treated with tetracycline and inoculated by grafting. The treated plants required 23 days to show the first symptom, whereas in the untreated, the symptoms appeared within 15 days. The typical yellow symptoms and remission of symptoms by antibiotics, confirm the etiology of mycoplasma organism. The occurrence of similar yellow disease in peanut has not been reported earlier from India<sup>5</sup>. Further studies on transmission by vectors, host range and electron microscopic studies are in progress.

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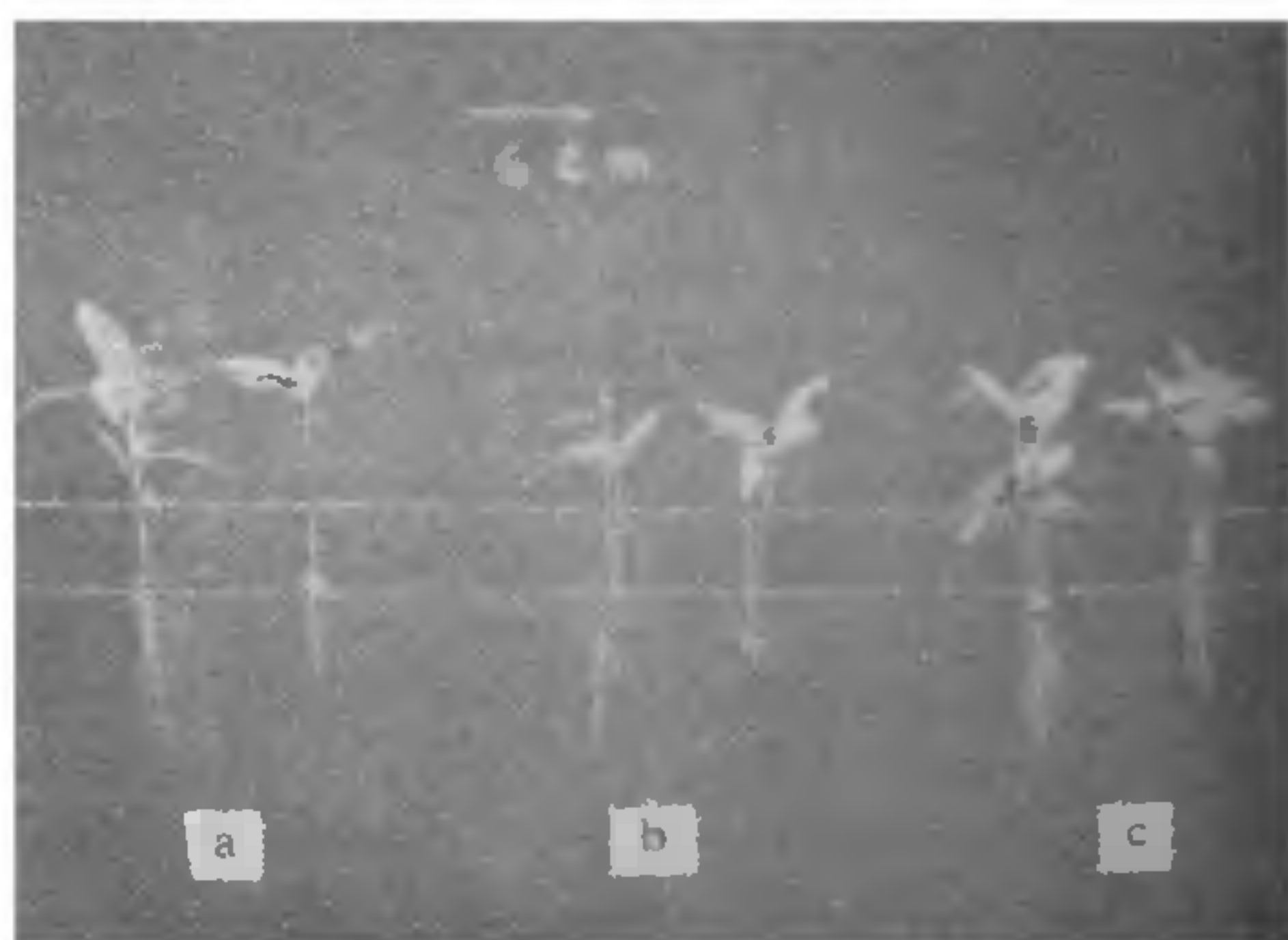
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### TWINS AND TRIPLETS IN *MACHILUS BOMBYCINA* KING (LAURACEAE)

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*MACHILUS BOMBYCINA* (Assamese: som) is one of the primary plants for feeding Muga Silkworm (*Antheraea assama* Westw). While raising seedlings of som for muga culture during July 1983, a few twin seedlings were observed. In June-July 1984, again some twins and a few triplets were observed 6–8 weeks



**Figures 1 a-c.** 'Singlet', twin and triplet seedlings of *Machilus bombycina* respectively. The two horizontal lines are the threads used to hold the seedlings in proper alignment.