Comment on a Paper on Sugarbeet Yellow Wilt by Urbina-Vidal and Hirumi

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A recent paper, "Search for causative agents of sugarbeet yellow wilt in Chile" by Urbina-Vidal and Hirumi (10)[2], has added some ultrastructural information to the phytopathological data previously available (1, 2). The report also has created some confusion by referring to what probably are normal cellular structures as presumptive virus particles, and by not referring to the available literature on ultrastructure of beet mosaic virus infections (6, 8, 9). The purpose of this comment is to supply some information from the literature that may aid in interpretation of the structures described in the report by Urbina-Vidal and Hirumi.

The structures described on pages 144 and 145 (10) apparently are accurately interpreted as mycoplasmalike organisms (MLO). However, the presence of elongated virus-like particles (VLP) described on pages 145 to 152 (Figs. 7-13) may be due to a field infection of beet mosaic virus that induces in sugarbeet cells inclusions and elongated virus particles similar to those described (6, 8, 9). It is common to find sugarbeets in the field infected with beet mosaic virus (7). Thus, the VLP's in Figs. 7 and 11 and the lamellar aggregates and pinwheels in Figs. 8, 9, 10, 12, and 13 could very easily be beet mosaic virus particles and inclusions.

The long filamentous particles discussed on pages 152-156 and shown in Figs. 14-19 could be virus particles or they could be normal structures known as P-protein bodies that are found in developing sieve elements and phloem parenchyma cells (4). The ultrastructural development of P-protein has been followed in the phloem of many plants including sugarbeet (3). Although Urbina-Vidal and Hirumi regard these long filamentous particles as beet yellows virus particles, considerable differences exist between beet yellows virus particles and normal P-protein in still another chenopodiaceous host, New Zealand spinach (*Tetragonia expansa* Murr.) (5).

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[2]Numbers in parentheses refer to literature cited.

"Tubular P-protein and virus particles differ considerably in dimensions and can be distinguished without difficulty. Transections of P-protein tubules show a greater width and a more conspicuous electron-lucent core than do those of the virus particles" (5). P-protein can be distinguished from virus particles at magnifications of approximately 60,000. At this magnification virus particles appear smooth; P-protein assumes an extended form in many plants and "reveals the regular striations along the length of the units" (5).

The authors should attempt, with higher magnification, to distinguish P-protein from possible filaments of beet yellows virus.

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