

## INTRODUCTION

Bacterial wilt of tomatoes (Lycopersicum esculentum Mill.) is caused by Pseudomonas solanacearum Smith.(1). The external symptoms of the disease are a rapid wilting of the leaf laminae, followed by reflexing of the petioles. Death follows in two to three days. If the stem of an infected plant is cut transversely across in the region of the hypocotyl a brown discolouration of the vasculars can be seen. This discolouration may extend a considerable distance up the stem, though it is rarely found in the petioles. When the stem is squeezed below the cut, a grey bacterial slime exudes from the xylem. Fusarium oxysporum (Schlecht) produces similar symptoms and a microscopic examination of the vasculars is necessary to distinguish between the two pathogens.

Pseudomonas solanacearum has a wide host range (2), (3), and is world-wide in its distribution. (4).

Bacterial wilt is one of the major limiting factors in the commercial production of tomatoes in Trinidad: growers in the Aranguez market garden area frequently losing their total crop through this disease alone. The disease is soil borne and land not carrying an susceptible crop may remain infective for five years (5). Control of the disease is complicated by the fact that melongene (Solanum melongena L.), another of the principal market garden cash crops in Trinidad, is also susceptible, as are many weed species e.g. Bidens pilosa, (6).

Thorold (7) suggested that cauliflowers, an immune crop, should be planted between crops of melongene and tomatoes, although there is no evidence that this gives long-term control. It has also been suggested that infected land should not carry a susceptible crop for four to five years and that rigid crop sanitation and the roguing of infected plants should be practised. Experiments in Trinidad have shown that sterilisation of the

planting holes with formalin or D.D.mixture before the plants are put in the field gives good control (8). The expense of sterilisation and the difficulties of effective crop sanitation are likely to prevent the adoption of these methods by the local small-scale producer.

It is interesting to note that high levels of phosphate manure increase the susceptibility of tomatoes to bacterial wilt, while high levels of nitrogen increase their resistance (9). The disease is most severe under conditions of high soil moisture and high atmospheric humidity, and in high temperatures (10).

There appeared to be no practical value in the methods of artificial control so far developed. It was therefore decided to attempt to breed a variety of tomato both resistant to the disease and suitable for the local market.