

Bacterial Wilt (*Ralstonia solanacearum*) (syn. *Burkholderia*, *Pseudomonas solanacearum*)

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This disease occurs in most warm tropical and subtropical regions of the world. Plants of the family *Solanaceae*, such as tomato, bell pepper, eggplant, potato and tobacco, are affected by this wilt disease. Infected plants show a progressive wilting that finally ends in plant death; the inside tissues of the stem are discolored. The causal organism is a bacterium that is found in the soil. Once the bacterial wilt organism has become established in a field, it is extremely difficult to eradicate. Bacterial wilt can affect many crop plants, and a large number of weeds as well. Some plants that can become infected by this organism do not show symptoms but are important in the survival of the bacteria.

At least 3 races of this organism are known; race 1 attacks a broad range of plants, including those mentioned above, while race 2 causes moko disease of bananas, and race 3 occurs only on potatoes and a few other plants.

The bacterial wilt organism survives in the soil by colonizing roots of crop plants and weed hosts. In the absence of weeds, it can also remain in its free state in the soil where it can survive for 5 months. It has been shown to survive as deep as 1m below the soil surface where soil moisture is adequate long after the surface soil dries up in the dry season. Bacterial wilt is a greater problem in heavy soils and low-lying areas that can retain soil moisture for long periods.

Nematode, insect, and tilling damage can increase bacterial wilt incidence. Damaged roots from transplanting activities also serve as infection sites for the bacteria. Infested soil transported with seedlings or with farm implements can serve as a means of long-range dissemination for the bacteria. Infected seedlings and seedpieces (potato) have been shown to do this as well.

Control:

- There is no well-proven way of completely controlling bacterial wilt. The best way to deal with it is to plant crops (like cucurbits) that are not affected by this pathogen once it has become established in a field.
- Crop rotations with sugarcane and paddy rice are reported to effectively control this problem in the Philippines. This control practice does not work in all regions however.
- There are resistant tomato cultivars available from AVRDC (Asian Vegetable Research and Development Centre), from Peto Seed Co., and from various breeding



Bell pepper plants dying of bacterial wilt infection.

programs in the Philippines.

- Resistant eggplant lines are reported from Puerto Rico. These include a native Long Green, Rosita, and Puerto Rican Beauty.
- Control of nematodes helps reduce the amount of disease. The same is true for insect damage and damage to roots due to cultural practices.
- Plantings should always start with healthy seedlings or seedpieces.

For further information contact an Extension Agent at your local land grant institution.



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