



Bacterial Plant Pathogens

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Plant diseases which caused by microorganisms are difficult to dominate due to their populations are changeable in genotype, space, climate and time. In order to overcome the losses in crops yield, vegetables and fruits they cause, it is needed to define the cause's agent of the problem and seek remedies. At the biological level, it is necessary to identify the causal organism by fast and accurate ways, and studying its virulence mechanisms to decrease the level of diseases severity. Using the genetic diversity of the crop helps in the control of spreading of plant diseases. At the political level, providing the knowledge of plant diseases that threat our agricultural products is important and to assign appropriate solves to their control.

Plant Pathogens are variable and different being viruses, bacteria, Oomycetes, fungi, nematodes, and parasitic plants. Although, these are small and simple in their structure, they can compromise agriculture security. Bacteria have extremely diverse they found almost everywhere on Earth. Plants consider good sources of nutrients for phytopathogenic bacteria. Bacteria can inter through natural opening like stomata due to they are too small. They can life in the intercellular spaces of plant organs. phytopathogenic bacteria can colonize in apoplast and obtain their nutrient of living plant cells.

Bacterial plant pathogens have the ability to cause various symptoms like rots, spots, wilts, cankers, and blights. Phytopathogenic bacteria can cause the death of plant depending on secreted enzymes that degrade the wall. They can life in the xylem causing wilts disease.

Phytopathogenic bacteria can cause great crop damages which may lead to famine in several countries. It is important to know the principle of plant diseases to minimize the loss of crop yield.

For successful infection, phytopathogenic bacteria must have different tools (virulence factor) to beat the plant defense mechanism. Virulence factors are variable such as enzymes, toxins, plant hormones and effectors to cope plant defense. Hence bacterial pathogen able to obtain all requirements (water, nutrients and place) for colonization and the symptoms of disease will appear. Virulence factors are often associated mobile genetic elements, such as plasmids, bacteriophages and other integrative and conjugative elements.

In general, bacterial pathogens use quorum sensing to ensure that virulence genes are only expressed after their population has reached a critical size. This unified attack strategy makes it more difficult for the host to mount an effective defense. Global community behavior can be regulated according to the number of bacteria and species composition of the community, and this regulation could promote survival of the consortia.

Plant pathogenic bacteria have negative effect on plant health and threat food security in the world. Another important fact is that in day-to-day life, humans and animals spread bacterial disease by cultivating, consuming, and excreting low-quality plant-based foods.

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