Plant diseases

Any change or deviation harmful to the normal functions of the physiological processes of the plant, whether external appearance or internal anatomy due to non-parasitic pathogens such as temperature and the lack and increase of mineral and other elements or parasitic pathogens such as fungi, bacteria, viruses and flora and other parasitic and the possibility of treatment or resistance to these diseases. The science that studies this called **plant pathology**.

There are two types of pathogens in plants diseases….

1- Non-parasitic pathogens : such as **:**

A- Inappropriate temperatures
B- Loss of oxygen
C- Decrease and increase in mineral elements
D- Toxic gases

2 - Parasitic pathogens : causes by one or more than one of the following pathogens :

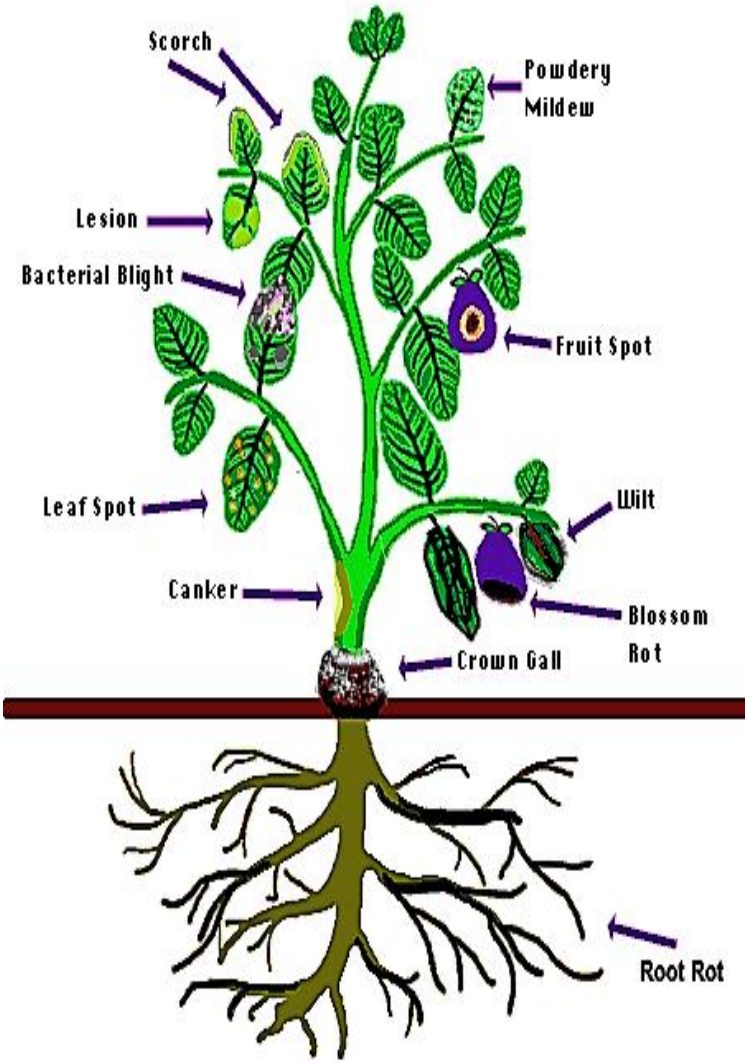
A- Fungi B- Bacteria C- Nematodes D- Algae
E- Viruses F- Viroids G- parasitic flowering plants

Pathogen : An organism living on or in another organism (Plants) called the host. It causing Infection (that is an parasitic relationship between pathogen and host).

All parts of plant can infected with diseases and diseases differ with the differentiation of plants and the parts of plant infected. Infection caused disease symptoms .

Disease symptoms: A group of appearance differences appear on the plant can be characterized by diagnosis of the disease such as staining, yellowing, blight, leaf wrapping, dwarfism, roots and stems and fruits rot. In Parasitic pathogens we should present of disease signs

Disease signs : Is the existence of the causative agent of the disease on the plant or inside its tissues, whether the presence of symptoms or lack of disease as in most diseases caused by different microscopic living organisms.

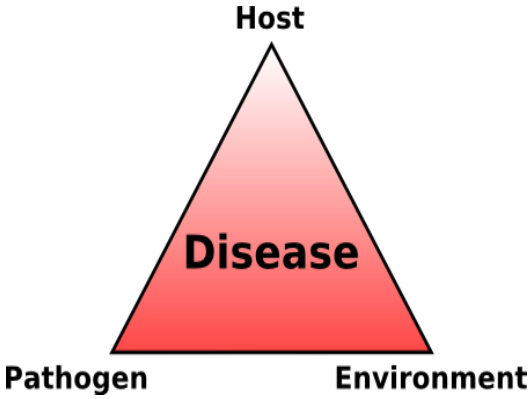


Koch's postulates

In 1884, the Scientist Koch's put several conditions that must be met before we prove that the organism is the causative agent.

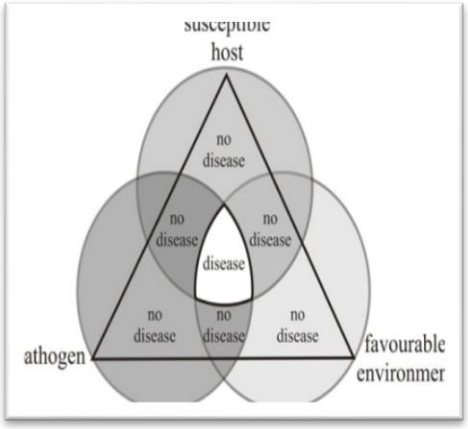
1. The organism is permanently associated with the sites of the disease.
2. The living organism must be isolated and cultured in a pure and free manner from other organisms.
3. The living organism should be injected from the pure culture to the healthy plant, which belongs to the same species from which the organism was isolated and should cause the same disease as was observed in the original.
4 - The organism must be isolated again and re-injected and result in the same original disease again.

Triangle disease



Plant diseases can be analyzed conveniently using the concept called the 'Disease Triangle this places the three factors which must interact to cause plant disease at the three corners of a triangle. Those three factors are :

1 - A parasitic organism capable of causing the disease
2 - Sensitive host to infection.
3. Environmental conditions sui table for the occurrence to the



Isolation of Pathogens from infected plant parts

1- Cut the plant parts into small pieces up to 1 cm3 using sterile scissors taking into account taking part of the healthy tissue in addition to the affected tissue.
2- Take small pieces and immerse in sodium hypochlorite solution for 3 minutes and then transferred to sterile distilled water and then to sterile filter paper to dry.
3- Transfer to the surface of the medium in petri dishes, incubate at 25 ° C for 72 hours and follow the fungal growth that will spread to the medium.