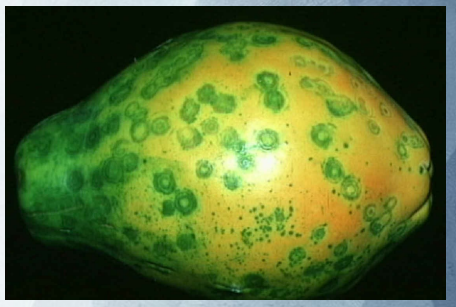

CHS3403 Principles of Plant Pathology in Cannabis and Medicinal Plant

9.Symptoms and principles of disease control

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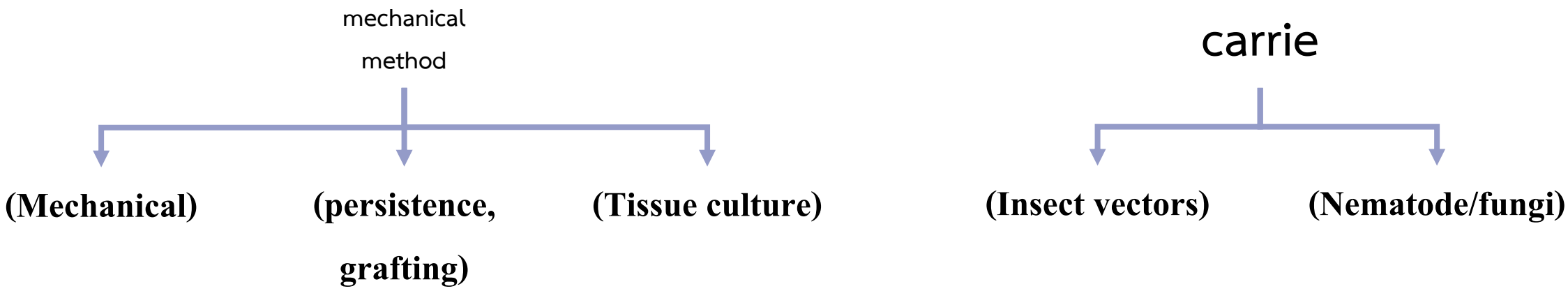
2. Plants that destroy viruses.

How to transmit virus to plants



2. Plants that destroy viruses

2.1 There are three forms of plant diseases:

1) Obtain cells suitable for disease occurrence

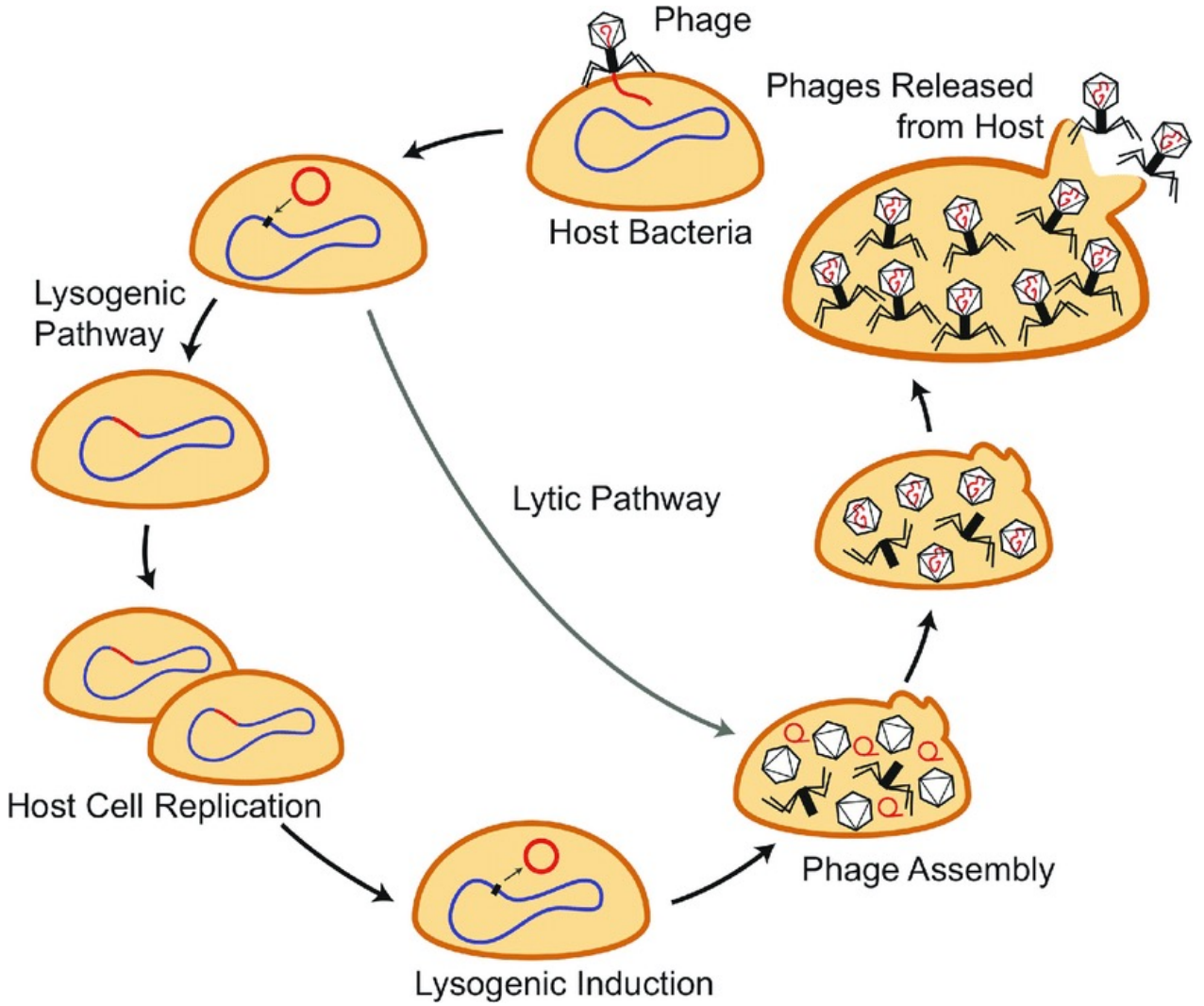
Because the virus cannot move, it needs various methods to enter plant cells, such as plants that have friction with normal plants. And cause wounds in plants.

2. Plants that destroy viruses

2.1 Causes of plant diseases

2) Increase the number of viruses in cells

When the virus can increase the number of plants, the virus will have gene expression, thus producing gene products. Cause cell dysfunction or disease.

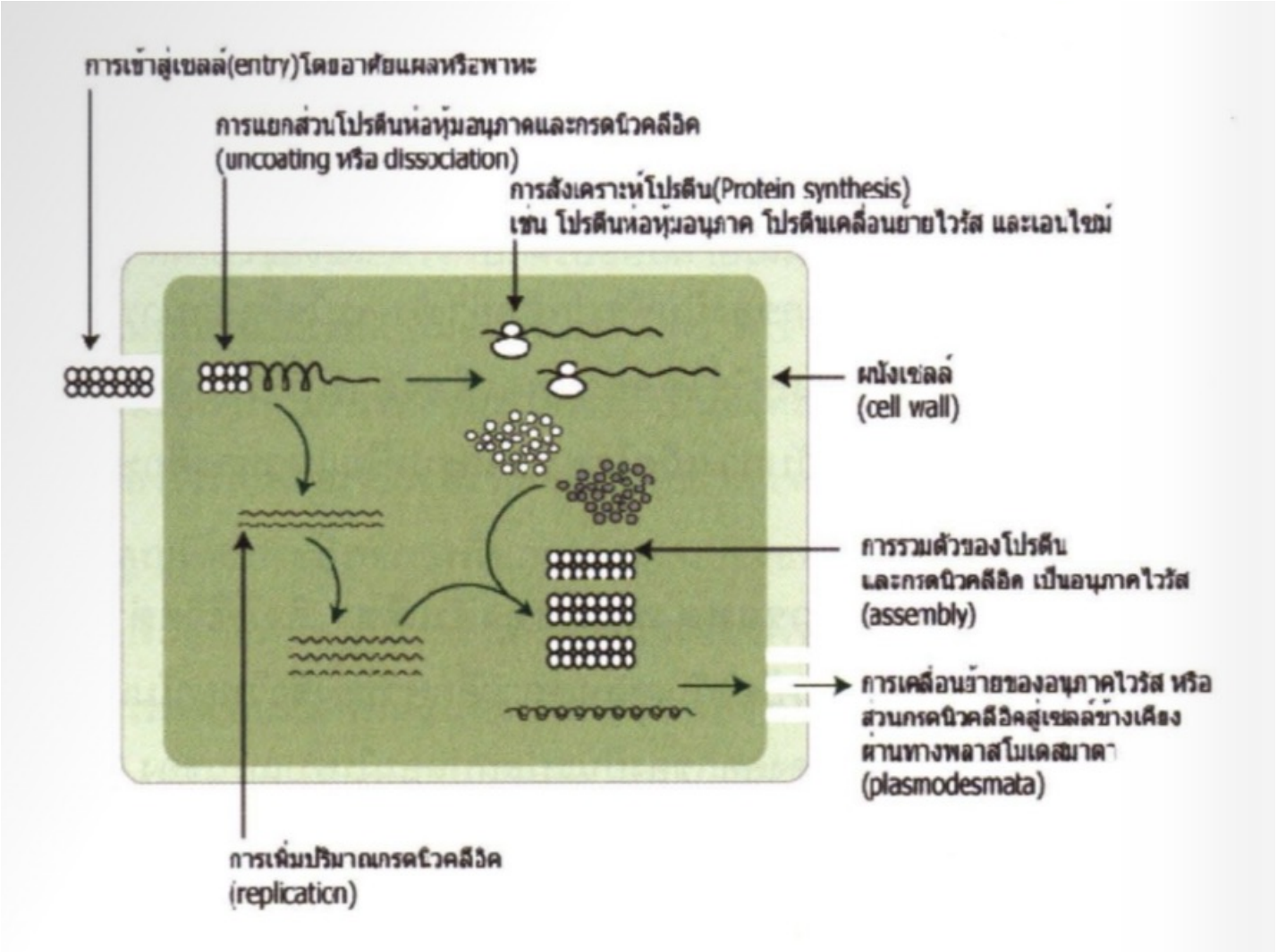


2. Plants that destroy viruses

2.1 Causes of plant diseases

3) Movement of virus in plants

Although the virus can reproduce, it cannot induce disease if it cannot transfer from damaged cells to adjacent cells.

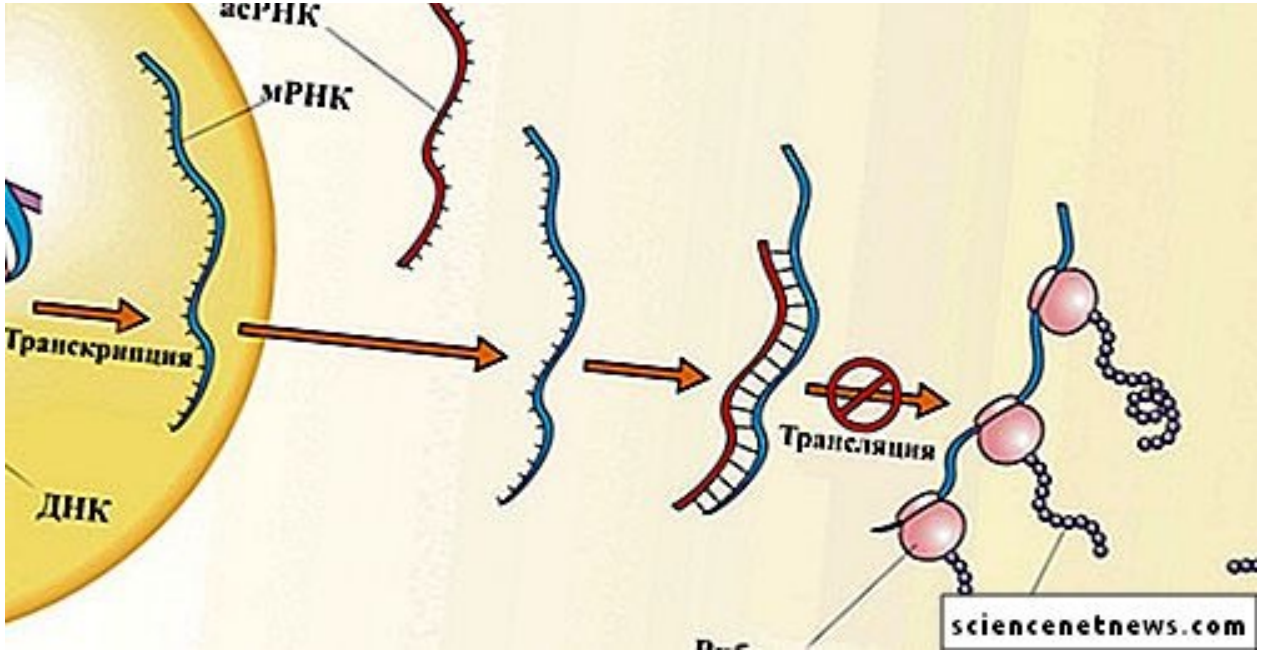


2. Plants that destroy viruses

2.2 There are four disease-related procedures:

1) Inhibit the function of plant genes.

Plants have a self-protection mechanism. Preventing the expression of foreign genes in the form of RNA is called gene silencing. This will lead to RNA cannot be encoded to produce protein.

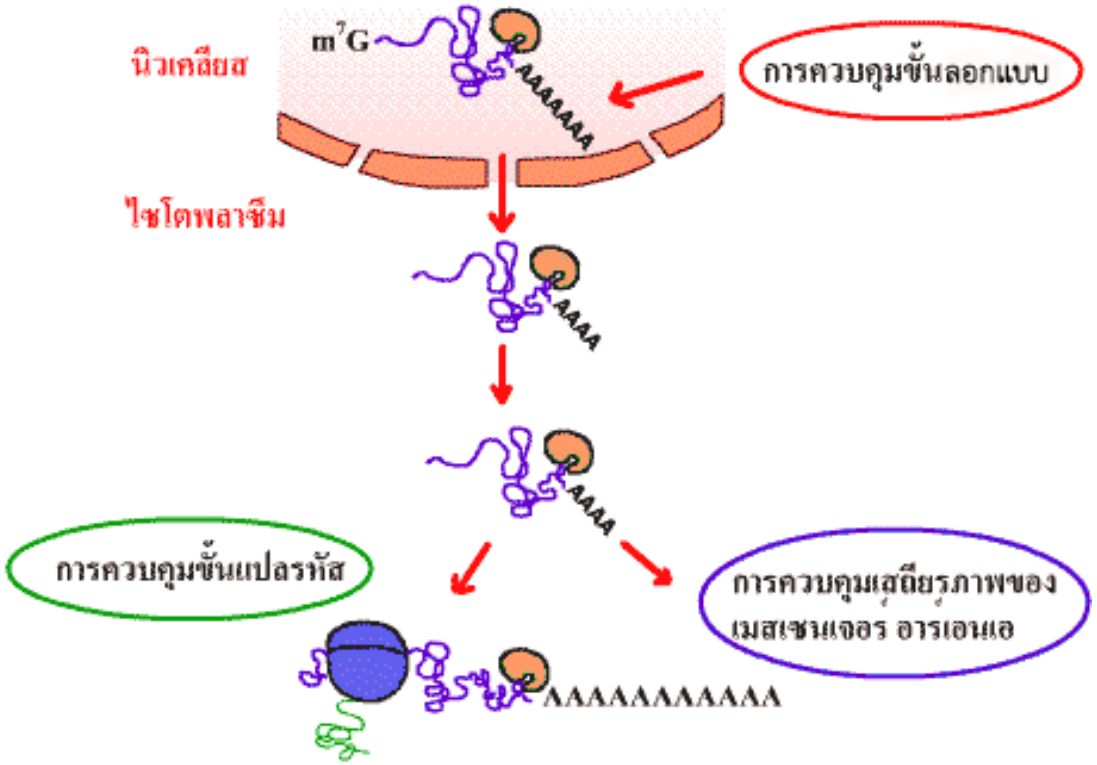


2. Plants that destroy viruses

2.2 Disease related procedures

2) Plant gene display control

Plant growth is directly related to gene expression that regulates the production of various hormones and substances. The increase in the number of viruses that control cell and tissue development is usually rapid, resulting in an increase in hormone levels. Abnormal, resulting in abnormal plant growth, such as slow growth, distortion, knot, defoliation, falling flowers, etc.

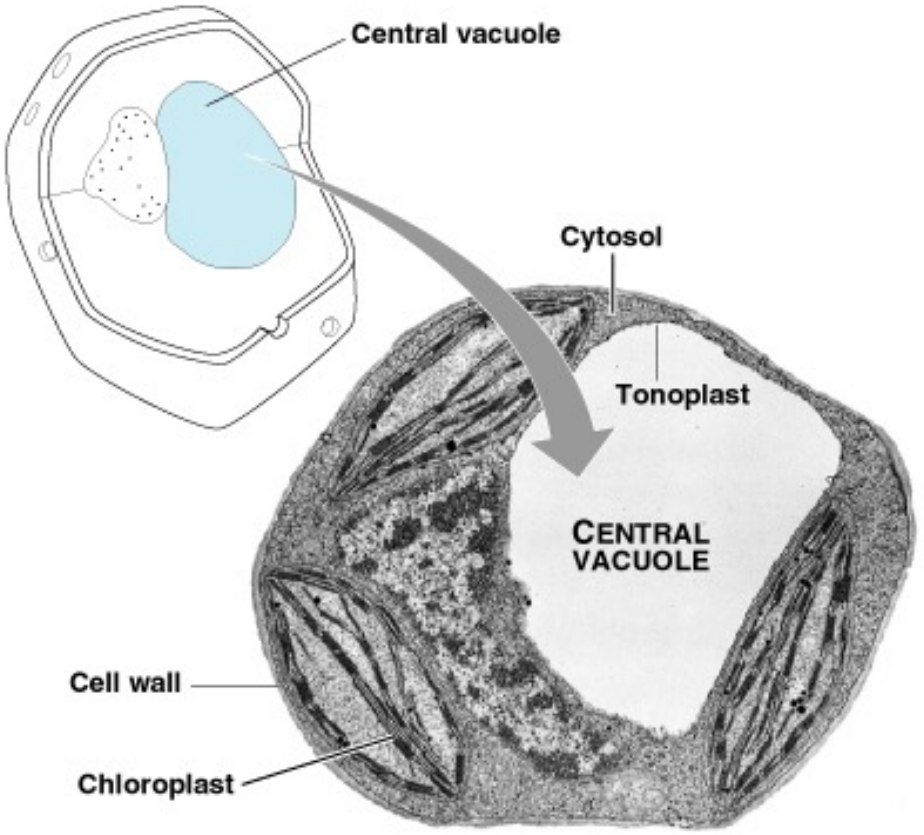


2. Plants that destroy viruses

2.2 Disease related procedures

3) Intracellular structural changes

Degradation. Membrane degradation may be related to the number of viruses or the aggregation of virus particles and Vacuum will cause various enzymes to release and decompose the membrane of these organic substances, leading to the imbalance of plant cells. And affect cell growth until cell death.



2. Plants that destroy viruses

2.2 Disease related procedures

4) Physiological changes in plants are considered to be the effects of processes, such as:

-Decrease of photosynthetic rate

-Increase respiratory rate;

-Change of enzyme content

-Accumulation of starch and sugar in diseased cells;

A system that changes from normal plant conditions can lead to abnormalities or symptoms of plant diseases.

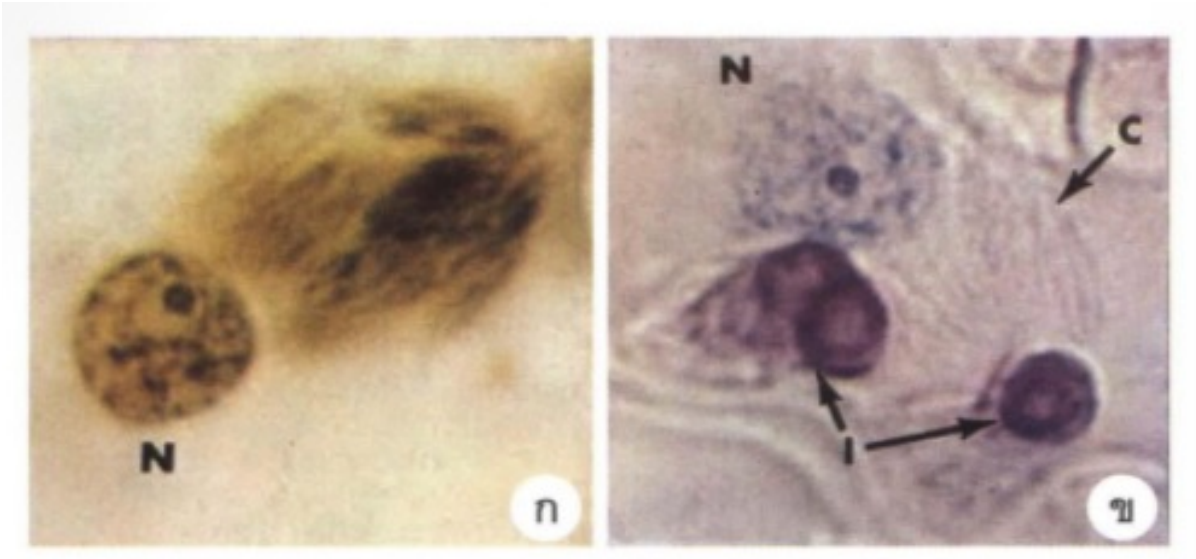
3. Characteristics of plant diseases caused by viruses

3.1 Characteristics of plant viral diseases

Viral plant diseases can be divided into two forms:

-Obvious external symptoms

-Internal symptoms caused by abnormal plant cells or tissues



3. Characteristics of plant diseases caused by viruses

3.1.1 External symptoms

It is a symptom and symptom group that can be clearly observed. Compared with normal disease-free plants, it can be divided into two types. Type:

1) Local symptoms

This is the symptom of the place where the virus destroys the plant. Most of the symptoms are wounds of different sizes.

3. Characteristics of plant diseases caused by viruses

2) Symptoms spread throughout the plant.

The virus can transfer from the plant cells destroyed by the virus to different parts of the plant and increase the number of new cells. Leading to the continuous destruction process inside the plant.

3. Characteristics of plant diseases caused by viruses

3.1.2 Internal symptoms

When plant cells are damaged by virus, it will affect the development of cells or cells and tissues, which is considered as a symptom of plant internal diseases. These symptoms include:

1) Intracellular foreign body

Intracellular foreign bodies have two main forms:

-The uncertain type of virus particles that may or may not be found in the foreign body is protein or enzyme. It is related to increasing viral load.

-This is a clear form, which can be seen with ordinary microscope and looks like crystal.

3. Characteristics of plant diseases caused by viruses

Needle-like crystal

appearance

4. spread of plant viruses

4.1 Virus transmission form

Virus transmission can be divided into two forms:

4.1.1 Transport within plants

This is a method of transmitting viruses from one generation of plants to another generation of plants. When plants reproduce without using sex, such as branches, heads, roots, rhizomes, branches or eyes. Grafting, including sexual reproduction such as seeds

1) Virus infection is the main reason for the widespread spread of the virus.

2) Through seed transmission

4. spread of plant viruses

4.1.2 Transmission between plants

The severity of the disease depends on the type of virus that can be transmitted and the carrier who transmits the virus from diseased plants to normal plants. The transmission between plants is as follows:

1) It is spread through contact with wounds on plants, which may lead to virus infection.

2) It is transmitted through cordyceps through high-level parasitic plants. When cordyceps grows on living plants, it will produce a horst. (storage room) infiltrates into the water pipes and esophagus of plants, and the virus spreads through the storage room.

3) Pollen transmission

4. spread of plant viruses

4.2 Plant virus carriers

5. Viral plant diseases and their prevention and eradication

Examples of plant diseases caused by viruses are as follows:

5.1 Papaya ring spot virus disease

5.2 Tomato yellow leaf curl

5. Viral plant diseases and their prevention and eradication

5.1 Papaya ring spot virus disease

Pathogens: ringspot virus, PRSV

Characteristics and symptoms of disease

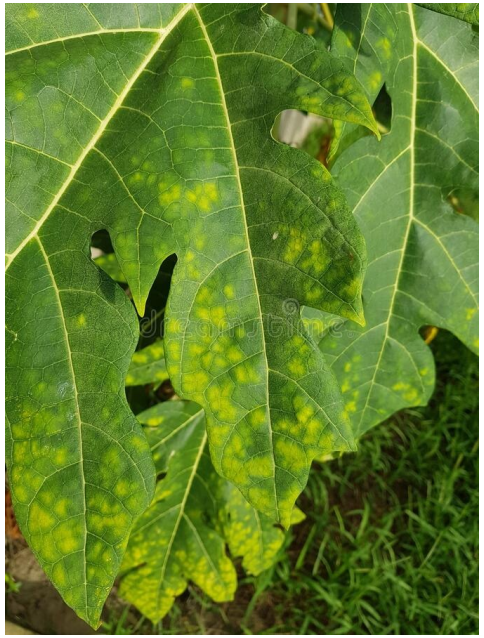
-There are obvious spots.

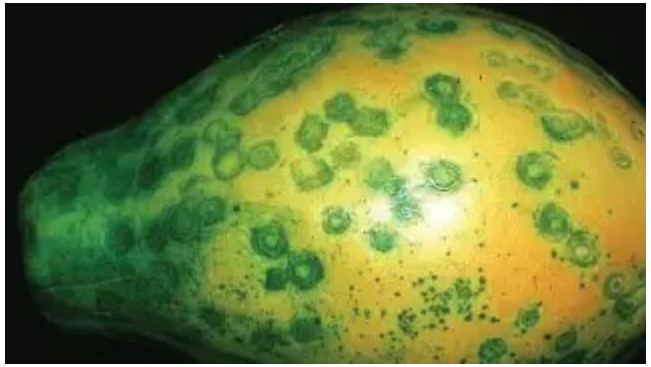
-The leaves become smaller and the leaf tips become thinner.

-The leaves are dark yellow.

-There are juicy spots or dark green long paths on the petiole.

-When the fruit is close to maturity, ring spots will appear.





5. โรคพืชที่เกิดจากไวรัสและการป้องกันกำจัดโรค

5.1 Papaya ringspot virus disease

Prevent and eliminate diseases.

-Use of disease-resistant substances

-Destroy diseased plants;

-Use greenhouse insect net

-Immunize papaya tree with mild virus (such as vaccine)

-Use of chemicals or antagonists

5. โรคพืชที่เกิดจากไวรัสและการป้องกันกำจัดโรค

5.2 Tomato yellow leaf curl disease

Pathogens : *Tomato yellow leaf curl virus*, TYLCV

Characteristics and symptoms of disease

-The tender leaves or tender leaves show yellow on the leaves/edges.

-The blade size is small and the edge is curved.

-The leaves are wavy and thicker than usual.

-The tree looks like a bush, short and small.

-Falling flowers, no fruit

5. โรคพืชที่เกิดจากไวรัสและการป้องกันกำจัดโรค

5.2 Tomato yellow leaf curl disease

Prevent and eliminate diseases.

-Use virus-free seedlings

-Whitefly control

-Planting and maintenance

-Develop disease-resistant tomato varieties


THANKS