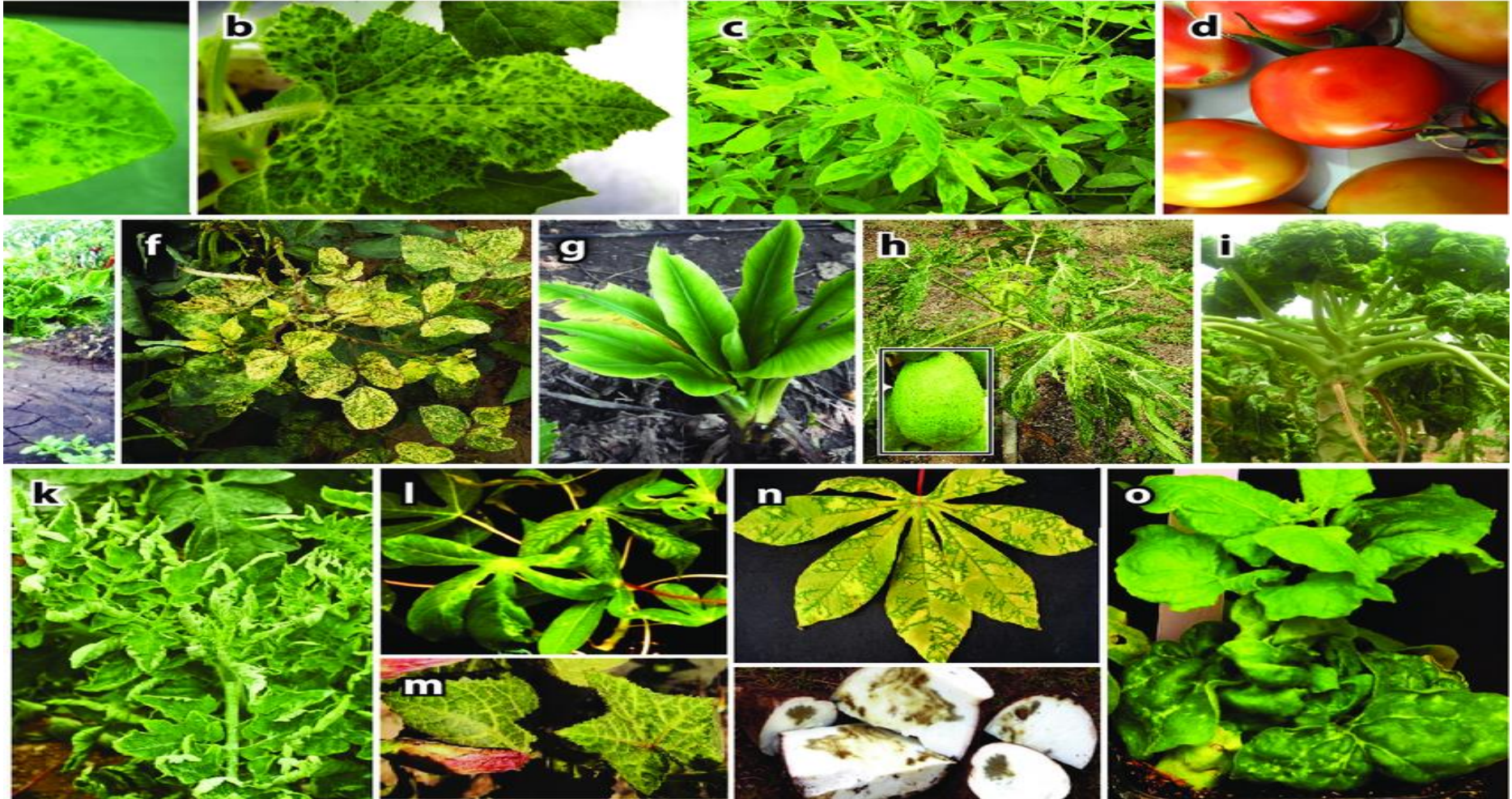


lab3

Symptomatology (External Symptoms)



Symptomatology

Symptoms indicate the plant reaction to virus infection.

Viruses can produce different kind of symptoms on plants.

The symptoms plant are divided in two types:

➤ **External symptoms:(morphological symptoms).**

reflect the disruption of growth regulators and chlorophyll production.

➤ **Internal symptoms:(histological and Cytological symptoms).**

involve cellular-level changes and structural disruptions, often requiring microscopy to detect.

There are some factors that influence plant virus disease symptoms.

➤ **Environmental and Climatic Conditions:**

temperature ,light and humidity can heavily influence the severity of the symptoms.

➤ **Host / Virus Variability :**

The symptoms depend on the specific virus strain and the susceptibility of the plant host.

➤ **Host Age:**

Younger plants often show more severe symptoms.

- Often confused with symptoms of mineral nutritional deficiency .
- Not dependable for correct diagnosis.

Virus-host interaction

Plant virus symptoms vary based on host-virus interaction:

- **1-Susceptible Host Symptoms (Severe Infection)**

the virus replicates freely and moves systemically throughout the plant, causing significant, visible damage.

- **2-Resistant Host Symptoms (Limited/No Infection)**

These plants restrict the virus, that prevent spread.

The plant remains healthy-looking because the virus cannot establish systemic infection.

- **3-Tolerant Host Symptoms (Mild/No Symptoms)**

These plants are infected and support virus multiplication but can withstand the infection without significant physiological disruption .

External Symptoms

1- Color Changes:

Chlorosis –Mosaic-Yellowing-
Variegation.

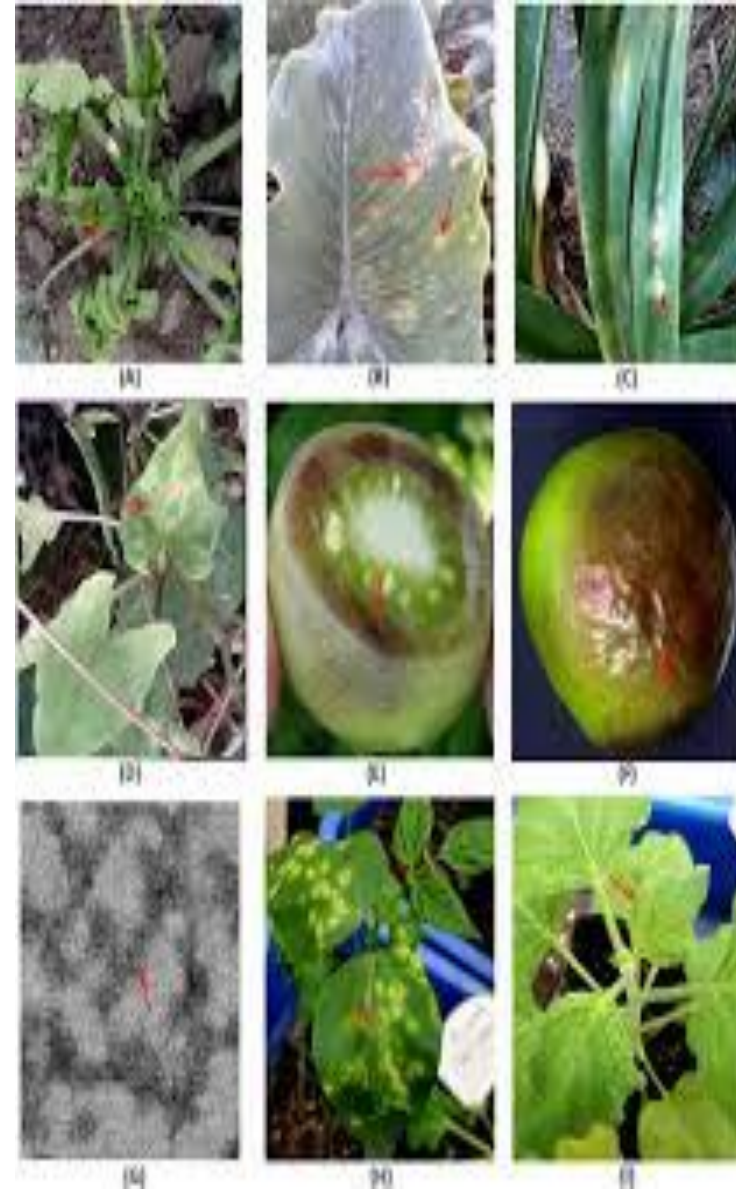
2- Death of Tissue:

Necrosis-local lesion-Vein
Necrosis-Ring Spot- Streak

3- malformations:

Enation-Blister-Leaf Crinkling-
Leaf Cure-leaf Roll-Filiform
Shape.

4- Vein Clearing:



External symptoms(morphological symptoms)

1- Color Changes :

➤ Chlorosis:

refers to the lack of chlorophyll, causing tissues to turn yellow, pale green.



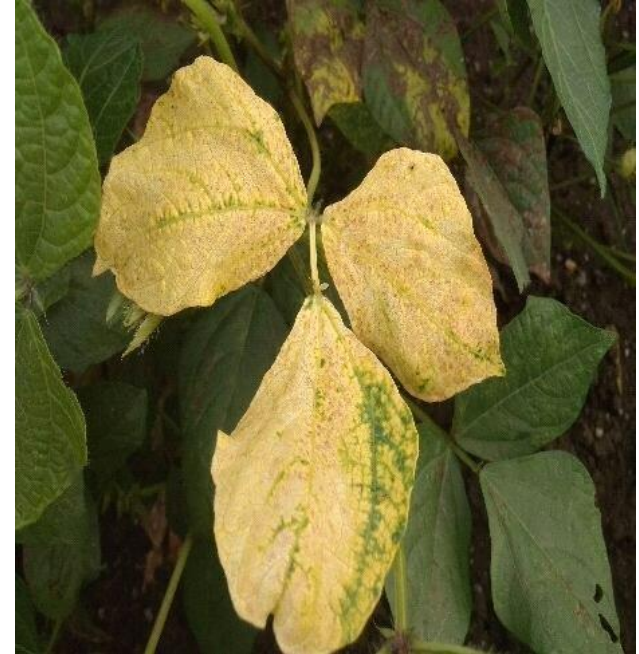
➤ Mosaic:

- irregular intermingling of normal green with light green, yellow, chlorotic areas imparting a mosaic like pattern.
- disrupt chloroplast development in specific areas of the leaf .



Yellowing :

- The entire leaf turns to yellow color (usually older leaves first).
- Due to inhibition of chlorophyll.



➤ Variegation :

Refers to the presence of color zones on flower

- breaking in petals color in Tulip .



2- Death of Tissue:

these are common viral symptoms representing the death of cell.

The infected parts become brown and dies.

➤ systemic (necrosis):

Severe ,widespread, and often lethal symptom where the virus overcomes initial defenses and moves throughout the plant, causing widespread tissue death.

➤ Local (Local lesion):

- virus cause local infection at the point of entry .
- on inoculated leaves.

➤ Different size and color.



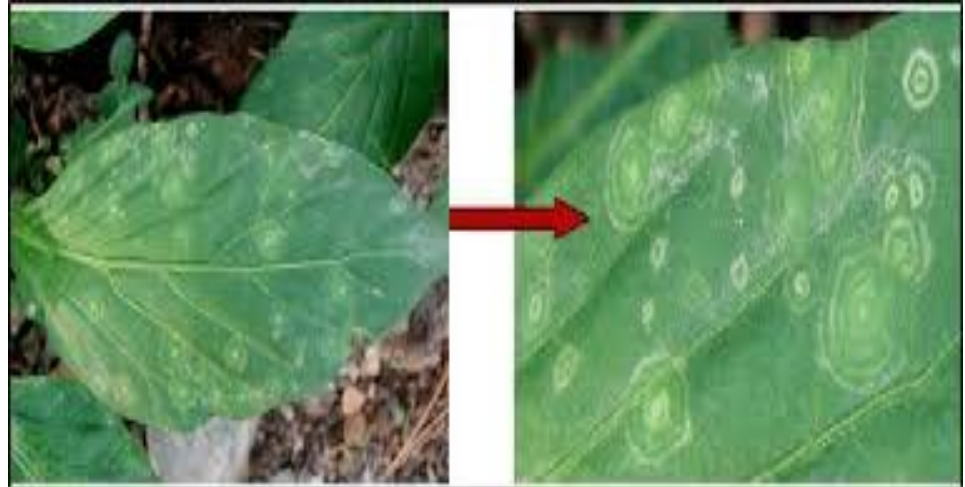
➤ Vein Necrosis:

Parts of the leaf veins die the lower surface of leaf .

➤ Ring spot :

characteristic circular, necrotic or yellow spots on plant leaves, often appearing as concentric rings.

Streak : irregular yellow or light stripes, streaks or mottled patterns .



3-Malformations:

Imbalance development
(hormonal disturbance).

➤ Enation:

- outgrowth present in the lower surface of leaf mainly on veins .

➤ Blister :

epidermis of leaf forms raised bubbled like growth .



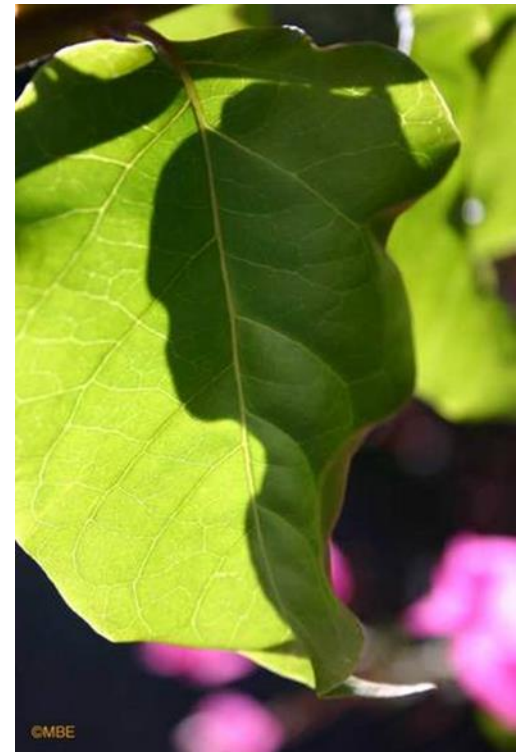
➤ Leaf Crinkling:

The leaf surface appears wrinkled and crinkling of leaf lamina .



➤ Leaf Curve:

The margin of leaves become curve slightly upward or downward.



➤ **Leaf Roll:**

- Folding of leaf along their mid axes.
- Upward rolling of leaf.



➤ **Filiform shape:**

- Reduction of leaf lamina.
- appears narrow(like shoe string).



3- Vein Clearing :

Vein become translucent ,while the interveinal are as remain green.

