

**Subject-Botany**

**Class- Bsc. -III**

**Paper-I (Pathology)**

**BY Dr. Deepti Sharma**

**Topic- Yellow vein Mosaic of Bhindi Disease**

### **Yellow Vein Mosaic : *Bhindi yellow vein mosaic virus***

This is the most important factor limiting cultivation of okra throughout India. This viral disease is prevalent wherever the crop is grown especially during the rainy season. If the plants are affected during the early stages of growth, there is a total loss of yield. If infection is found within 35 days of germination, the crop growth is retarded with very few leaves and fruits. Damage may be to an extent of about 94 percent. Plants infected at 50 and 65 days after germination suffer a loss of 84 and 49 percent respectively. The extent of damage declines with the delay in infection.

## Symptoms

Yellowing of the entire network of veins in the leaf blade is the characteristic symptom.

- In severe infections the younger leaves turn yellow, become reduced in size and the plant is highly stunted.
- The veins of the leaves will be cleared by the virus and interveinal area becomes completely yellow or white.
- In a field, most of the plants may be diseased and the infection may start at any stage of plant growth.
- Infection restricts flowering and fruits, if formed, may be smaller and harder.
- The affected plants produce fruits with yellow or white colour and they are not fit for marketing.
- The virus is spread by whitefly.

## **The causal agent:**

The disease is caused by the Yellow Vein Mosaic Virus (YUMA).

Normally it is not sap transmissible, but under experimental conditions, it has been transmitted by grafting. Not much is known about the nature and properties of this virus. It is transmitted by white flies (*Bemisia tabaci*) and the okra leaf hopper (*Empoasca devastans*). The wild hosts of the virus include rail weed (*Croton sparsiflora*), and goat weed (*Ageratum sp*).

## **Disease cycle**

The insect vectors transmit the virus from wild hosts to the main crop. The disease is not seed borne. A continuous cycle is maintained through wild or cultivated hosts.

Climatic factors favour the population build up of vectors and the prevalence of wild hosts.



**Vein-Clearing/Yellow Vein Mosaic in *Bhendi***

## Control of Disease

1. By selecting varieties resistant to yellow vein mosaic like Parbhani Kranti, Arka Abhay, Arka Anamika, and Varsha Uphar, the incidence of the disease can be minimised.
2. The virus is transmitted by the whitefly (*Bemisia tabaci*). Parbhani Kranti, Janardhan, Haritha, Arka Anamika and Arka Abhay can tolerate yellow vein mosaic.
3. For sowing during the summer season, when the whitefly activity is high, the susceptible varieties should be avoided.
4. Spraying monocrotophos 1.5 ml/litre of water can restrict the disease spread.
5. Synthetic pyrethroids should not be used because it will aggravate the situation.
6. It can be controlled by application of Chlorpyrifos 2.5 ml + neem oil 2 ml lit of water.