

CHAPTER 2

Modes of Spread of Plant Pathogens

The plant viruses, being obligate parasites, require an injury in order to get into the plant tissues. The spread of these organisms is altogether different. The transmission of plant pathogens takes place through two different mechanisms under natural conditions (vertical transmission and horizontal transmission). This topic is elaborated in detail in the paragraphs below. The spread of all the plant pathogens is through both living and non-living agents (Table 2.1; Fig. 2.1). The vertical transmission mode of spread involves vegetative propagation, such as grafting, mechanical means, seed/pollen transmission and parasitic plants. The other means viz. insects, mites, nematodes, fungi, protozoa, animals, birds, slugs and earthworms in the living category, and air, water and soil in the non-living, are known to spread via horizontal pattern.

2.1 Vertical Transmission

2.1.1 *Vegetative propagation*

Vegetative propagation is an important practice, used as a means to improve the quality of fruit and flowering plants. This process involves the use of plant parts, such as tubers, rhizomes, suckers, and corms, to plant crops. Viruses are systemic in nature; thus, all plant parts are known to carry plant viruses since the infected plant parts are often used as seed or for grafting purposes, without there being any knowledge of the viruses that they are spreading. The vegetative plant parts are taken to far-off places by various methods of human transportation. This method of propagation is extensively used, and is the most common way of spreading plant viruses in crop plants, particularly in horticultural crops. The vegetative propagation