

Infection of Plant Viruses with DNA Genomes : Ultrastructural Aspects

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Viruses are obligate parasites indicating that they must enter cells of the host for their replication. When susceptible cells are infected by a virus, they accommodate virus by synthesizing viral nucleic acid and viral protein. In this process, normal metabolism becomes disturbed resulting in the formation of structures of some sort which are absent in uninfected cells. These structures, virus-induced inclusions, are, in many cases, characteristic to a particular virus or to a group of related viruses. They are, therefore, useful in virus diagnosis and classification and the characterization of an unknown virus that is causing a disease. Most plant viruses contain RNA genomes. Of the more than 40 established groups of plant viruses, only those in two groups contain DNA genomes. Viruses in these two groups, dsDNA-containing caulimoviruses and ssDNA-containing geminiviruses, induce group specific inclusions and discovering new viruses. Structure and function of these inclusions and the role of various techniques of electron microscopy in the identification of the inclusions will be discussed.