

1.2. Biological Properties

1.2.1. Host Range

Trichoviruses infect dicotyledonous plants and differ in their geographical distribution. ACLSV, GVA, and GVB are found worldwide, but PVT was reported only in the Andean region of South America. The natural host range of trichoviruses is restricted to either a single host (PVT, HLV, GVA, and GVB), or to a somewhat wider host range (ACLSV).

ACLSV is known to infect woody rosaceous plants, including apple, pear, plum, peach, cherry, and apricot. Although it is more or less symptomless in pome fruits, it is responsible for serious diseases in stone fruits, including peach dark-green mottle, false plum pox, and plum bark split (15). The economic importance of ACLSV is largely because of its worldwide distribution, and to its capacity to induce severe graft incompatibilities in some *Prunus* combinations, which causes important problems in nurseries.

PVT host range is limited: The main disease has been reported only for potato (*Solanum tuberosum*), in which it is usually latent, but occasionally produces a mild leaf mottle (3). GVA and GVB are associated with, respectively, Kober stem grooving and corky bark diseases of the grapevine–rugose wood complex. These diseases are associated with symptoms of pitting and grooving (5,6). HLV occurs commonly in Scotland in wild *Heracleum sphondylium* (hogweed) plants, without causing any symptoms (4).

1.2.2. Transmission

All trichoviruses are experimentally transmitted by sap inoculation and by grafting. The viruses can be propagated on the following herbaceous hosts: *Chenopodium quinoa* (ACLSV, PVT, and HLV), *Nicotiana benthamiana* (GVA), and *Nicotiana occidentalis* (GVB). The mode of natural transmission differs among the species. No natural vectors are known for ACLSV and PVT, dissemination being mediated by propagative material, and PVT is also seed transmitted in different hosts. Seed transmission also seems to be possible for ACLSV in apricot (15). Both GVA and GVB are transmitted by mealybugs. HLV is transmitted by aphids in a semipersistent mode.

1.2.3. Morphological and Physicochemical Properties

The morphology of all trichoviruses is characterized by a highly flexuous filamentous particle of 12 nm in diameter and 640–800 nm in length, with a pitch of 3.3–3.5 nm and approx 10 subunits per turn of the helix. The viral particle encapsidates a single-stranded positive sense genomic RNA of 2.2–2.5