

Tombusvirus Isolation and RNA Extraction

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1. Introduction

The group Tombusvirus is one of the 16 groups of plant viruses established in 1971 (1). Its name derives from the sigla “tombus” from *tomato bushy stunt*, which is the disease caused by the type member of the group, tomato bushy stunt virus (TBSV). The group was later ranked as genus *Tombusvirus* in the family *Tombusviridae*, which includes also the genus *Carmovirus*, in the new classification of plant viruses in families, genera, and species approved by the International Committee on Taxonomy of Viruses (ICTV) at the Ninth International Congress of Virology in Glasgow in 1993 (2). A list of selected definitive members of the genus is reported in **Table 1**.

The natural host range of individual virus species is rather narrow and restricted to dicotyledons, infecting very few or only one host. But the artificial host range is wide and is comprised of several plant species in 20 different dicotyledonous and monocotyledonous families (3).

The majority of the tombusvirus species occur in temperate regions, where they occasionally cause outbreaks with economic relevance. Diseases of major importance have been reported for tomato, pepper, and eggplant caused by TBSV, for artichoke caused by artichoke mottled crinkle (AMCV), for eggplant caused by eggplant mottled crinkle (EMCV), for pepper and tomato caused by Moroccan pepper (MPV), and for cherry caused by petunia asteroid mosaic (PAMV) (3). Tombusviruses have stable, highly infectious particles, which are readily transmissible mechanically; they are often found in natural environments such as soil and surface water, from which they can be acquired by the hosts in the absence of respective hosts without the assistance of vectors. For only cucumber necrosis virus has it been demonstrated that soil-transmission is favored by the soil inhabiting chytrid fungus *Olpidium bornovanus* (4,5).