

Taxonomic Proposal to the ICTV Executive Committee

Creating species in an existing genus

Code[†] **2007.121P.04** To designate the following as species in the genus:

Carmovirus

belonging to the family[°] :

Tombusviridae

Angelonia flower break virus
Pea stem necrosis virus

[†] Assigned by ICTV officers

[°] leave blank if inappropriate or in the case of an unassigned genus

Author(s) with email address(es) of the Taxonomic Proposal

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Old Taxonomic Order

Order

Family *Tombusviridae*

Genus *Carmovirus*

Type Species *Carnation mottle virus*

Species in the Genus: 15

New Taxonomic Order

Order

Family *Tombusviridae*

Genus *Carmovirus*

Type Species *Carnation mottle virus*

Species in the Genus: 17

ICTV-EC comments and response of the SG

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Species demarcation criteria in the genus

- Extent of serological relationship as determined by immunodiffusion and/or ELISA,
- Extent of sequence identity between relevant gene products:
 - Less than 41% aa sequence identity of the CP,
 - Less than 52% aa sequence identity of the polymerase,
- Cytopathological features. Presence or absence of multivesicular bodies,
- Transmission by a fungal vector,
- Natural host range,
- Artificial host range reactions.

Argumentation to justify the designation of new species in the genus

Angelonia flower break virus

There is a substantial characterization and complete sequence (DQ219415) of the virus (Adkins et al., 2006) that indicates that it has the genome characteristics of a member of the genus Carmovirus. This is supported by phylogenetic analysis (see Annex) and comparisons showing that it has 51% aa identity in the entire polymerase gene (and 52% in the coat protein) to Carnation mottle virus.

Pea stem necrosis virus

The complete sequence of the virus (AB086951) is described and analysed in the paper by Suzuki et al., (2002). This shows that it has the genome characteristics of a member of the genus Carmovirus. This is supported by phylogenetic analysis (see Annex) and comparisons showing that it has 53% aa identity in the entire polymerase gene (and 32% in the coat protein) to Melon necrotic spot virus.

List of created Species in the genus

Angelonia flower break virus

Angelonia flower break virus (AFBV) DQ219415

Pea stem necrosis virus

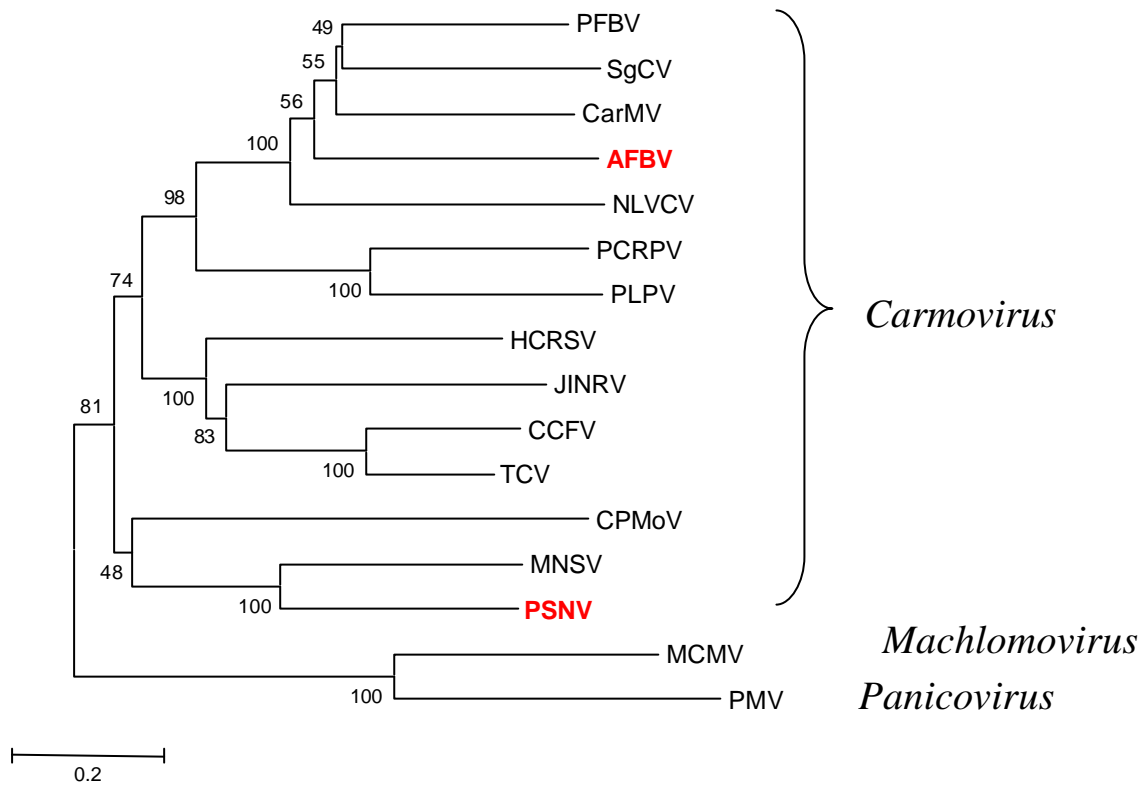
Pea stem necrosis virus (PSNV) AB086951

References

Adkins S., Hammond J., Gera A., Maroon-Lango C.J., Sobolev I., Harness A., Zeidan M., Spiegel S. (2006). Biological and Molecular Characterization of a Novel Carmovirus Isolated from *Angelonia*. *Phytopathology* 96:460-467.

Suzuki S., Hase S., Takahashi T., Ikegami M. (2002). The genome organization of Pea stem necrosis virus and its assignment to the genus *Carmovirus*. *Intervirology* 45:160-163.

Annex



Phylogenetic (Neighbor-joining) tree for members of the genus *Carmovirus* and relatives, based on the joined polymerase-mp-cp peptide sequences. Analysis in MEGA 3.1 used JTT distances and 100 bootstrap replicates. The two proposed new species are highlighted in red.