



This form should be used for all taxonomic proposals. Please complete all those modules that are applicable (and then delete the unwanted sections).

Code(s) assigned:	2008.028P	(to be completed by ICTV officers)		
Short title: 1 new species in the genus Babuvirus (e.g. 6 new species in the genus <i>Zetavirus</i> ; re-classification of the family <i>Zetaviridae</i> etc.)				
Modules attached (please check all that apply):	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	6 <input type="checkbox"/>	7 <input type="checkbox"/>		
5 <input checked="" type="checkbox"/>				

Author(s) with e-mail address(es) of the proposer:

Joe Vetten (heinrich-josef.vetten@jki.bund.de) on behalf of the Nanoviridae SG

ICTV-EC or Study Group comments and response of the proposer:

MODULE 5: **NEW SPECIES**

Code	2008.028P	(assigned by ICTV officers)
To create 1 new species assigned as follows:		
Genus:	<i>Babuvirus</i>	Fill in all that apply. Ideally, species should be placed within a genus, but it is acceptable to propose a species that is within a Subfamily or Family but not assigned to an existing genus (in which case put "unassigned" in the genus box)
Subfamily:		
Family:	<i>Nanoviridae</i>	
Order:		

Name(s) of proposed new species:

Abaca bunchy top virus

Argument to justify the creation of the new species:

If the species are to be assigned to an existing genus, list the criteria for species demarcation and explain how the proposed members meet these criteria.

Species demarcation criteria published in the 8th report are:

Since the genus *Babuvirus* has been monotypic, species demarcation criteria have not yet been defined for this genus. We propose that the criteria used for species demarcation in the genus *Nanovirus* (family *Nanoviridae*) are provisionally used also for babuviruses, as follows:

- Overall nt sequence identity of <75% is generally indicative of a distinct species,
- Different reactions to antibodies to individual species,
- Differences in CP aa sequences of >15%,
- Differences in natural host range, and
- Differences in the number and types of vector aphid species.

Argument to justify the creation of the new species:

Two isolates of a novel babuvirus, referred to as Abacá bunchy top virus (ABTV), have been recently described (Sharman et al., 2008), one from abacá (*Musa textilis*) from the Philippines [Q1108] and one from banana (*Musa* sp.) from Sarawak (Malaysia) [Q767]. The genome of both isolates of *Banana bunchy top virus* (BBTV). However, unlike BBTV, both ABTV isolates lack an internal ORF in DNA-R and the ORF in DNA-U3 found in some BBTV isolates is also absent. In all phylogenetic analyses of nanovirus isolates, ABTV and BBTV fall in the same clade, but on separate branches (Fig. 1). However, ABTV and BBTV isolates shared only 79-81% amino acid sequence identity for the putative coat protein and 54-76% overall nucleotide sequence identity across all components. In these respects ABTV meets the molecular criteria that have been used for species demarcation in the genus *Nanovirus*. Stem loop and major common regions were present in ABTV but there was less than 60% identity with the major common region of BBTV. ABTV and BBTV were also shown to be serologically distinct, with only two out of ten BBTV-specific monoclonal antibodies reacting with ABTV. The two ABTV isolates may represent distinct strains of the species as they are less closely related to each other than are isolates of the two geographic subgroups (Asian and South Pacific) of BBTV. Similar to BBTV they are transmitted by the banana aphid, *Pentalonia nigronervosa*.

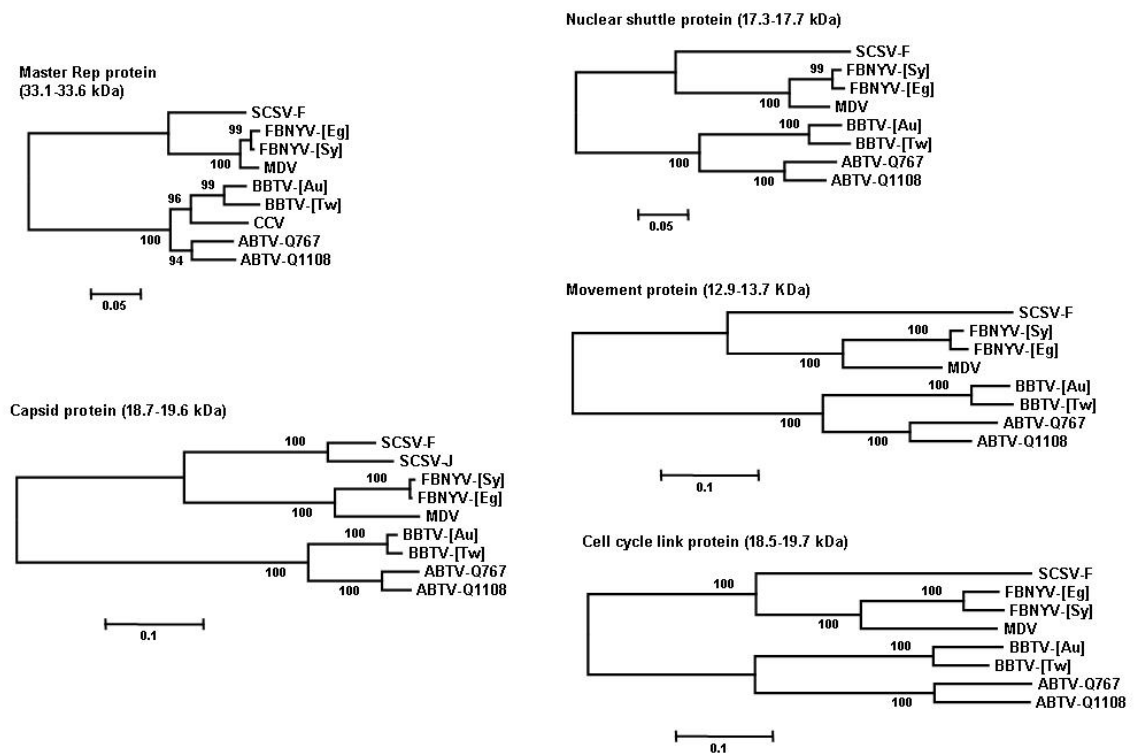


Fig. 1 Neighbour-joining dendrograms illustrating aa sequence relationships of ABTV isolates from banana [Q767] and abaca [Q1108] to other nanovirids for the five proteins identified. Horizontal distances are proportional to aa substitutions per site and dendrograms were bootstrapped 500 times with values greater than 50% indicated. Abbreviations and GenBank accession numbers used for these dendrograms are: subterranean clover stunt virus isolate F (SCSV-F): AJ290434, U16730, U16732-4; SCSV isolate J: L47332; faba bean necrotic yellows virus, Egypt isolate (FBNYV-Eg): AJ132179, AJ132180, AJ132182, AJ132183, AJ132186; FBNYV, Syria isolate (Sy): Y11405, Y11407, Y11408, AJ005965, AJ005967; milk vetch dwarf virus (MDV): AB027511, AB009046, AB000923, AB000925, AB000927; banana bunchy top virus, Australia isolate (BBTV-Au): AR010225, AR010236-9; BBTV, Taiwan isolate (Tw): AF416468, AF148942, DQ826394-6; cardamon clump virus (CCV.): AY485960; abacá bunchy top virus isolate Q767 (ABTV-Q767): EF546808, EF546810-13; and ABTV-Q1108: EF546802, EF546804-7.

References:

Sharman M, Thomas JE, Skabo S, Holton TA. (2008). Abacá bunchy top virus, a new member of the genus Babuvirus (family Nanoviridae). Arch. Virol. 153:135-147.