

Template for Taxonomic Proposal to the ICTV Executive Committee Creating Species in an existing genus

Code[†] To designate the following as species in the genus:

belonging to the family[°] :

[†] 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

Old Taxonomic Order

Order

Family

Geminiviridae

Genus

Begomovirus

Type Species

Species in the Genus

Tentative Species in the Genus

Unassigned Species in the family

New Taxonomic Order

Order

Family

Geminiviridae

Genus

Begomovirus

Type Species

Species in the Genus

Tentative Species in the Genus

Unassigned Species in the family

ICTV-EC comments and response of the SG

Species demarcation criteria in the genus

The following criteria should be used as a guideline to establish taxonomic status:

- Number of genomic components. Presence or absence of a DNA B component
- Organization of the genome. Presence or absence of ORF AV2.
- Nucleotide sequence identity. Because of the growing number of recognized species, derivation of the complete nucleotide sequence will be necessary to distinguish species. Nucleotide sequence identity <89% is generally indicative of a distinct species. However, decisions based on nucleotide sequence comparisons, particularly when approaching this value, must take into account the biological properties of the virus. The taxonomic status of a recombinant will depend on relatedness to the parental viruses, the frequency and extent of recombination events, and its biological properties compared with the parental viruses. Information concerning the diversity of related recombinants may be helpful to determine status.
- *Trans*-replication of genomic components. The inability of Rep protein to *trans*-replicate a genomic component suggests a distinct species. However, when considering this criterion, it should be kept in mind that small changes in the Rep binding site of otherwise identical viruses might prevent functional interaction, and recombination involving a small part of the genome may confer replication competence on a distinct species.
- Production of viable pseudorecombinants. Account should be taken of the fitness of the pseudorecombinant in the natural host(s) of the parental viruses. It should be ensured that pseudorecombinant viability is not the result of inter-component recombination.
- Coat protein characteristics. Amino acid sequence identity <90% and substantial serological differences may be indicative of a distinct species in the first instance, but derivation of the complete sequence will be necessary to confirm taxonomic status.
- Natural host range and symptom phenotype. These characteristics may relate to a particular species but their commonest use will be to distinguish strains.

Argument to justify the designation of new species in the genus

The proposed species show less than 89% nucleotide sequence identity with existing species, in accordance with the accepted demarcation criteria:

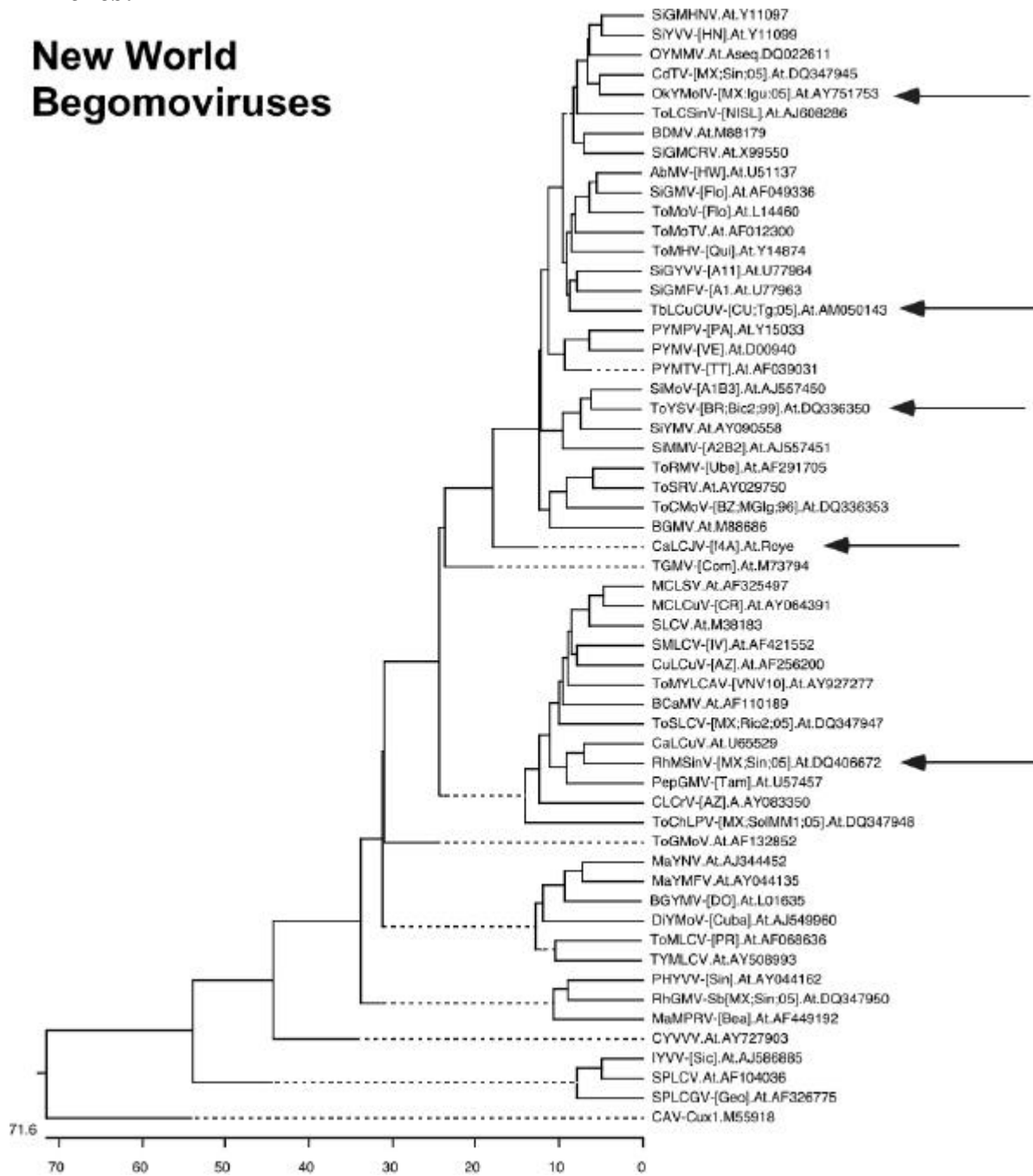
New species	Accession	Most closely related sp	% identity
Alternanthera yellow vein virus			
Alternanthera yellow vein virus - [China:Guangxi 38:Ludwigia:2003]	AJ965540	Tobacco leaf curl Yunnan virus	72.7
Alternanthera yellow vein virus - [China:Hainan 51:2004]	AM050736	Tobacco leaf curl Yunnan virus	72.7
Cabbage leaf curl Jamaica virus			
Cabbage leaf curl Jamaica virus - [Jamaica:CUc3:2005]	DQ178608	Potato yellow mosaic virus	80.2
Cabbage leaf curl Jamaica virus - [Jamaica:Douglas Castle:2005]	DQ178614	Potato yellow mosaic virus	79.6
Cotton leaf curl Bangalore virus			
Cotton leaf curl Bangalore virus - [India:Bangalore:2004]	AY705380	Cotton leaf curl Multan virus	85.4
East African cassava mosaic Kenya virus			
East African cassava mosaic Kenya virus - [Kenya:Kathiana:K300:2002]	AJ717580	East African cassava mosaic Zanzibar virus	87.4
Ludwigia yellow vein virus			
Ludwigia yellow vein virus - [China:Guangxi 37:2003]	AJ965539	Ageratum yellow vein Taiwan virus	78.9
Malvastrum leaf curl virus			
Malvastrum leaf curl virus - [China:Guangxi 87:2004]	AJ971263	Tobacco leaf curl Yunnan virus	81.3
Okra yellow mottle Iguala virus			
Okra yellow mottle Iguala virus - [Mexico:Iguala]	AY751753	Chino del tomate virus	86.2
Rhynchosia golden mosaic Sinaloa virus			
Rhynchosia golden mosaic Sinaloa virus - [Mexico:Sinaloa:2005]	DQ406672	Pepper golden mosaic virus	80.8
Sida leaf curl virus			
Sida leaf curl virus - [China:Hainan 57:2004]	AM050730	Tobacco leaf curl Yunnan virus	77.8
Siegesbeckia yellow vein virus			
Siegesbeckia yellow vein virus - [China:Guangdong 13:2004]	AM183224	Ageratum yellow vein China virus	84.4
Siegesbeckia yellow vein virus - [China:Guangdong 24:2004]	AM230634		84.2
Siegesbeckia yellow vein virus - [China:Guangdong 27:2004]	AM230635		84.4
Tobacco leaf curl Cuba virus			
Tobacco leaf curl Cuba virus - [Cuba:Taguasco:2005]	AM050143	Chino del tomate virus	82.9
Tomato leaf curl Uganda virus			
Tomato leaf curl Uganda virus - [Uganda:Iganga:2005]	DQ127170	Tomato leaf curl Mayotte virus	84.3
Tomato yellow spot virus			
Tomato yellow spot virus - [Brazil:Minas Gerais-Bicas2:1999]	DQ336350	Sida micrantha mosaic virus	87.8
Vernonia yellow vein virus			
Vernonia yellow vein virus - [India:Madurai:2005]	AM182232	Papaya leaf curl China virus	79.1
Malvastrum leaf curl Guangdong virus			
Malvastrum leaf curl Guangdong virus - [China:Guangdong 6:2004]	AM236779	Papaya leaf curl Guangdong virus	92.2
Malvastrum leaf curl Guangdong virus - [China:Guangdong 9:2004]	AM236780		92.1
Malvastrum yellow mosaic virus			
Malvastrum yellow mosaic virus - [China:Hainan 36:2004]	AM236755	Malvastrum yellow vein virus	86.5
Malvastrum yellow mosaic virus - [China:Hainan 37:2004]	AM236756		86.5
Siegesbeckia yellow vein Guangxi virus			
Siegesbeckia yellow vein virus - [China:Guangxi 111:2005]	AM238692	Siegesbeckia yellow vein virus	88.0
Tomato leaf curl Guangxi virus			
Tomato leaf curl Guangxi virus - [China:Guangxi 1:2003]	AM236784	Tobacco leaf curl Yunnan virus	88.9
Tomato leaf curl Guangxi virus - [China:Guangxi 2:2003]	AM236785		88.9
Tomato leaf curl Guangxi virus - [China:Guangxi 3:2003]	AM236786		89.0

List of created species in the genus

<i>Alternanthera yellow vein virus</i>			
Alternanthera yellow vein virus - [China:Guangxi 38:Ludwigia:2003]	AJ965540		(AIYVV-[CN:Gx38:Lud:03])
Alternanthera yellow vein virus - [China:Hainan 51:2004]	AM050736		(AIYVV-[CN:Hn51:04])
<i>Cabbage leaf curl Jamaica virus</i>			
Cabbage leaf curl Jamaica virus - [Jamaica:CUc3:2005]	DQ178608	DQ178609	(CabLCuJV-[JM:CUc3:05])
	DQ178610	DQ178611	
Cabbage leaf curl Jamaica virus - [Jamaica:Douglas Castle:2005]	DQ178614	DQ178613	(CabLCuJV-[JM:DC:05])
<i>Cotton leaf curl Bangalore virus</i>			
Cotton leaf curl Bangalore virus - [India:Bangalore:2004]	AY705380		(CLCuBV-[IN:Ban:04])
<i>East African cassava mosaic Kenya virus</i>			
East African cassava mosaic Kenya virus - [Kenya:Kathiana:K300:2002]	AJ717580	AJ704965	(EACMKV-[KE:Kat:K300:02])
East African cassava mosaic Kenya virus - [Kenya:Kathiani:K301:2002]	AJ717573		(EACMKV-[KE:Kat:K301:02])
East African cassava mosaic Kenya virus - [Kenya:Kehancha:K229:2002]	AJ717578	AJ704968	(EACMKV-[KE:Keh:K229:02])
East African cassava mosaic Kenya virus - [Kenya:Kehancha:K230:2002]	AJ717579	AJ704967	(EACMKV-[KE:Keh:K230:02])
East African cassava mosaic Kenya virus - [Kenya:Kehancha:K238:2002]	AJ717577	AJ704969	(EACMKV-[KE:Keh:K238:02])
East African cassava mosaic Kenya virus - [Kenya:Matuu:K307:2002]	AJ717576		(EACMKV-[KE:Mat:K307:02])
East African cassava mosaic Kenya virus - [Kenya:Matuu:K308:2002]	AJ717574	AJ704972	(EACMKV-[KE:Mat:K308:02])
East African cassava mosaic Kenya virus - [Kenya:Matuu:K310:2002]	AJ717575		(EACMKV-[KE:Mat:K310:02])
East African cassava mosaic Kenya virus - [Kenya:Migori:K228:2002]	AJ717582	AJ704966	(EACMKV-[KE:Mig:K228:02])
East African cassava mosaic Kenya virus - [Kenya:Migori:K261:2002]	AJ717581	AJ704970	(EACMKV-[KE:Mig:K261:02])
East African cassava mosaic Kenya virus - [Kenya:Mitaboni:K298:2002]	AJ717572	AJ704971	(EACMKV-[KE:Mit:K298:02])
East African cassava mosaic Kenya virus - [Kenya:Tala:K302:2002]	AJ717569		(EACMKV-[KE:Tal:K302:02])
East African cassava mosaic Kenya virus - [Kenya:Tala:K303:2002]	AJ717570		(EACMKV-[KE:Tal:K303:02])
East African cassava mosaic Kenya virus - [Kenya:Tala:K304:2002]	AJ717571		(EACMKV-[KE:Tal:K304:02])
<i>Ludwigia yellow vein virus</i>			
Ludwigia yellow vein virus - [China:Guangxi 37:2003]	AJ965539		(LuYVV-[CN:Gx37:03])
<i>Malvastrum leaf curl Guangdong virus</i>			
Malvastrum leaf curl Guangdong virus - [China:Guangdong 6:2004]	AM236779		(MaLCuGdV-[CN:Gd6:04])
Malvastrum leaf curl Guangdong virus - [China:Guangdong 9:2004]	AM236780		(MaLCuGdV-[CN:Gd9:04])
<i>Malvastrum leaf curl virus</i>			
Malvastrum leaf curl virus - [China:Guangxi 87:2004]	AJ971263		(MaLCV-[CN:Gx87:04])
<i>Malvastrum yellow mosaic virus</i>			
Malvastrum yellow mosaic virus - [China:Hainan 36:2004]	AM236755		(MaYMV-[CN:Hn36:04])
Malvastrum yellow mosaic virus - [China:Hainan 37:2004]	AM236756		(MaYMV-[CN:Hn37:04])
<i>Okra yellow mottle Iguale virus</i>			
Okra yellow mottle Iguale virus - [Mexico:Iguale]	AY751753		(OYMoIV-[MX:Igu])
<i>Rhynchosia golden mosaic Sinaloa virus</i>			
Rhynchosia golden mosaic Sinaloa virus - [Mexico:Sinaloa:2005]	DQ406672	DQ406673	(RhGMSV-[MX:Sin:05])
<i>Sida leaf curl virus</i>			
Sida leaf curl virus - [China:Hainan 57:2004]	AM050730		(SiLCuV-[CN:Hn57:04])
<i>Siegesbeckia yellow vein virus</i>			
Siegesbeckia yellow vein virus-[China:Guangdong 13:2004]	AM183224		(SbYVV-[CN:Gd13:04])
Siegesbeckia yellow vein virus-[China:Guangdong 24:2004]	AM230634		(SbYVV-[CN:Gd24:04])
Siegesbeckia yellow vein virus-[China:Guangdong 27:2004]	AM230635		(SbYVV-[CN:Gd27:04])
<i>Siegesbeckia yellow vein Guangxi virus</i>			
Siegesbeckia yellow vein virus - [China:Guangxi 111:2005]	AM238692		(SbYVGxV-[CN:Gx111:05])
<i>Tobacco leaf curl Cuba virus</i>			
Tobacco leaf curl Cuba virus - [Cuba:Taguasco:2005]	AM050143		(TbLCuCUV-[CU:Tag:05])
<i>Tomato leaf curl Guangxi virus</i>			
Tomato leaf curl Guangxi virus - [China:Guangxi 1:2003]	AM236784		(ToLCGx V-[CN:Gx1:03])
Tomato leaf curl Guangxi virus - [China:Guangxi 2:2003]	AM236785		(ToLCGx V-[CN:Gx2:03])
Tomato leaf curl Guangxi virus - [China:Guangxi 3:2003]	AM236786		(ToLCGx V-[CN:Gx3:03])
<i>Tomato leaf curl Uganda virus</i>			
Tomato leaf curl Uganda virus - [Uganda:Iganga:2005]	DQ127170		(ToLCUV-[UG:Iga:05])
<i>Tomato yellow spot virus</i>			
Tomato yellow spot virus - [Brazil:Minas Gerais-Bicas2:1999]	DQ336350	DQ336351	(ToYSV-[BR:MG-Bic2:99])
<i>Vernonia yellow vein virus</i>			
Vernonia yellow vein virus - [India:Madurai:2005]	AM182232		(VeYVV-[IN:Mad:05])

Annexes:

New World Begomoviruses



Old World Begomoviruses

