

List of Viruses and Phytoplasmas reported to naturally infect plants currently covered under National Certification System for Tissue Culture Plants

S. No.	Common Name	Scientific Name	Viruses/ Phytoplasma	No. of viruses to be tested	Tests to Detect listed Virus/ Phytoplasma	
					ELISA	PCR/ RT-PCR
1.	Alstroemeria	<i>Alstromeria spp.</i>	Alstroemeria mosaic virus (Potyvirus)	3	+	+
			Cucumber mosaic virus (Cucumovirus)		+	+
			Tospovirus			+
2.	Apple	<i>Malus domestica</i>	Apple chlorotic leaf spot virus (Trichovirus)	5	+	+
			Apple mosaic virus (Iarvirus)		+	+
			Apple stem grooving virus (Capillovirus)		+	+
			Apple stem pitting virus (Foveavirus)		+	+
			Prunus necrotic ringspot virus (Iarvirus)		+	+
3.	Bamboo	<i>Bambusa spp.</i>	Bamboo mosaic virus (Potexvirus)	1	+	+
4.	Banana	<i>Musa spp.</i>	Banana bract mosaic virus (Potyvirus)	4	+	+
			Banana bunchy top virus (Babuvirus)			+
			Banana streak virus (Badnavirus)		+	+
			Cucumber mosaic virus (Cucumovirus)		+	+
5.	Black Pepper	<i>Piper nigrum</i>	Cucumber mosaic virus (Cucumovirus)	3	+	+
			Piper yellow mottle virus (Badnavirus)		+	+
			Phytoplasma		+	+
6.	Calathea	<i>Calathea lancifolia</i>	Nil	Nil	-	-

7.	Calla lily	<i>Zantedeschia aethiopica</i>	Cucumber mosaic virus (Cucumovirus)	3	+	+
			Dasheen mosaic virus (Potyvirus)		+	+
			Tospovirus			+
8.	Cardamom Large	<i>Amomum subulatum</i>	Cardamom bushy dwarf virus (Babuvirus)	2	+	+
			Large cardamom chirke virus (Macluravirus)		+	+
9.	Cardamom Small	<i>Elettaria cardamomum</i>	Banana bract mosaic virus (Potyvirus)	2	+	+
			Cardamom mosaic virus (Macluravirus)		+	+
10.	Carnation	<i>Dianthus caryophyllus</i>	Carnation etched ring virus (Caulimovirus)	5	+	+
			Carnation latent virus (Carlavirus)		+	+
			Carnation mottle virus (Carmovirus)		+	+
			Carnation necrotic fleck virus (Closterovirus)		+	+
			Carnation vein mottle virus (Potyvirus)		+	+
11.	Cordyline	<i>Cordyline fruticosa</i>	Nil	Nil	-	-
12.	Date Palm	<i>Phoenix dactylifera</i>	Phytoplasma	1		+
13.	Eucalyptus	<i>Eucalyptus spp.</i>	Phytoplasma	1		+
14.	Fig	<i>Ficus spp.</i>	Cucumber mosaic virus (Cucumovirus)	1	+	+
15.	Gerbera	<i>Gerbera spp.</i>	Cucumber mosaic virus (Cucumovirus)	3	+	+
			Tobacco rattle virus (Tobravirus)		+	+

			Tospovirus			+
16.	Ginger	<i>Zingiber officinale</i>	Cucumber mosaic virus (Cucumovirus)	2	+	+
			Ginger chlorotic fleck virus (unassigned Sobemovirus)		+	+
17.	Gladiolus	<i>Gladiolus spp.</i>	Bean yellow mosaic virus (Potyvirus)	4	+	+
			Cucumber mosaic virus (Cucumovirus)		+	+
			Tobacco rattle virus (Tobravirus)		+	+
			Tobacco ringspot virus (Nepovirus)		+	+
			Tobacco mosaic virus (Tobamovirus)		+	+
18.	Lily	<i>Lilium longifolium</i>	Cucumber mosaic virus (Cucumovirus)	4	+	+
			Lily mottle virus (Potyvirus)		+	+
			Lily symptomless virus (Carlavirus)		+	+
			Tospovirus			+
19.	Neem	<i>Azadirachta indica</i>	Nil	Nil	-	-
20.	Orchids	<i>Cymbidium spp., Dendrobium spp., Cattleya spp., Phalaenopsis spp. etc.</i>	Cymbidium mosaic virus (Potexvirus)	4	+	+
			Odontoglossum ringspot virus (Tobamovirus)		+	+
			Tobacco mosaic virus (Tobamovirus)		+	+
			Tospovirus			+
21.	Pineapple	<i>Ananas comosus</i>	Pineapple mealybug wilt-associated virus (Ampelovirus)	2		+
			Badnavirus			+
22.	Pointed gourd	<i>Trichosanthes dioica</i>	Ageratum enation virus (Begomovirus)	1		+
23.	Potato	<i>Solanum tuberosum</i>	Potato apical leaf curl virus (Tomato leaf curl New Delhi virus)	8		+
			Potato leaf roll virus		+	+

			(Polerovirus)			
			Potato virus A (Potyvirus)		+	+
			Potato virus M (Carlavirus)		+	+
			Potato virus S (Carlavirus)		+	+
			Potato virus X (Potexvirus)		+	+
			Potato virus Y (Potyvirus)		+	+
			Tospovirus			+
24.	Strawberry	<i>Fragaria spp.</i>	Strawberry latent ringspot virus (Nepovirus)	3	+	+
			Strawberry mild yellow edge-associated virus		+	
			Tobacco streak virus (Ilarvirus)		+	+
25.	Sugarcane	<i>Saccharum officinarum</i>	Sugarcane bacilliform virus (Badnavirus)	4	+	+
			Sugarcane mosaic virus (Potyvirus)		+	+
			Sugarcane yellow leaf virus (Polerovirus)			+
			Phytoplasma			+
26.	Syngonium	<i>Syngonium spp.</i>	Tospovirus	1		+
27.	Vanilla	<i>Vanilla spp.</i>	Bean common mosaic virus (Potyvirus)	9	+	+
			Bean yellow mosaic virus (Potyvirus)		+	+
			Cowpea aphid borne mosaic virus (Potyvirus)		+	+
			Cucumber mosaic virus (Cucumovirus)		+	+
			Cymbidium mosaic virus (Potexvirus)		+	+
			Dasheen mosaic virus (Potyvirus)		+	+
			Odontoglossum ringspot virus (Tobamovirus)		+	+

			Ornithogalum mosaic virus (Potyvirus)		+	+
			Watermelon mosaic virus (Potyvirus)		+	+
28.	Yucca	Yucca spp.	Yucca bacilliform virus (Badnavirus)	1		+

ELISA: Enzyme-linked Immunosorbent Assay; **RT-PCR:** Reverse transcription polymerase chain reaction; **PCR:** Polymerase chain reaction

