

Naming of Peanut Stripe Virus

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Nomenclature of potyviruses naturally infecting peanut (*Arachis hypogaea* L.) has become increasingly confused in recent years. In 1965, Kuhn (5) reported a virus in the United States that was seed transmitted in peanut, which he named peanut mottle virus (PMV). In 1980, Dubern and Dollet (3) found a virus infecting peanut in West Africa that they designated as groundnut eyespot virus (GEV). In 1981, Sreenivasulu et al (6) reported a virus infecting peanut in India that was called peanut green mosaic virus (PGMV). In 1983, Xu et al (12) reported a virus producing mild mottle (VPMM) in peanut from China, but the virus was not named. They called it 'virus producing mild mottle.' In 1984, Demski et al (2) reported a virus infecting peanut in the United States and named it peanut stripe virus (PStV). Introduction of PStV into the United States originated in seeds from The People's Republic of China (2). In 1986, Fukumoto et al (4) reported a virus from peanut that they referred to as peanut chlorotic ring mottle virus (PCRMV). Also in 1986, Bays and Demski (1) reported bean yellow mosaic virus (BYMV) naturally infecting peanut.

Researchers in different countries (especially in Southeast Asia) have been observing a variety of virus symptoms in peanut from which potyviruses have been isolated. When mechanically inoculated to other peanut plants, these isolated viruses caused symptoms resembling those observed in the original field-collected specimens. Many workers continue to use descriptive names for these viruses, consequently, several names have been given to these virus isolates and their diseases, such as 'stripe,' 'blotch,' 'green blotch,' 'chlorotic ring,' 'mild mottle,' 'green mosaic,' 'groundnut mottle,' and 'peanut mosaic.' As these names are found in the literature, confusion develops as to whether these are the same or different viruses.

At a Peanut Stripe Virus Coordinators' Meeting held in Malang, Indonesia, 9–12 June 1987, an ad hoc committee on PStV nomenclature was formed. Membership consisted of a virologist from each of the following countries; the United States, India, Thailand, Japan, and Indonesia. Committee members discussed both published and unpublished information available on potyviruses in peanut and concluded that some of the previous published reports (8) from Southeast Asia were incorrect in their virus identification. In particular, it appears that some viruses that were described as being related to PMV, now should be considered more closely related to PStV (9).

The ad hoc committee proposes that PStV should be the recognized name for virus isolates from peanut in Southeast Asia that have the following characteristics 1) close serological relationship to the peanut stripe virus isolate reported by Demski et al (1); 2) close serological relationship to blackeye cowpea mosaic virus; 3) serological relationship to soybean mosaic virus; 4) not (or weakly) serologically related to peanut mottle virus; 5) local lesions on *Chenopodium amaranticolor*; 6) no symptoms on *Phaseolus vulgaris* 'Topcrop,' and 7) seed transmission in peanut. These characteristics were proposed because the name was given in 1984 to a virus that was sufficiently characterized to warrant a new name; PStV has become the recognized name by most people in the United States and Southeast Asia, where it is endemic; PStV was clearly shown to be different from PMV; and the name is sufficiently distinctive so as not to be easily confused with names of other viruses infecting peanut.

A combination of double immunodiffusion (DID) and direct enzyme-linked immunosorbent assays (ELISA) were used to test potyvirus relationships. Precipitin lines in DID plates were read

TABLE 1. Comparison of some potyviruses reported to naturally infect peanut

Virus isolate ^a	Antisera to				Reaction on Topcrop bean	Lesions on <i>Chenopodium</i> sp.	Seed transmission in peanut
	PMV	PStV	BICMV	SMV			
PMV-M	S ^b	— ^c	—	—	+ ^d	— ^e	+
PStV	—	S	S	M ^f	—	+	+
PGMV	—	M	M	M	—	+	—
VPMM	W ^g	S	S	M	—	+	+
PCRMV	W	S	S	M	—	+	—
GEV	—	NA ^h	— ⁱ	M	NA	—	NA
BYMV	—	—	NA	NA	+	+	—

^a PMV = peanut mottle virus; PStV = peanut stripe virus; PGMV = peanut green mosaic virus; VPMM = virus producing mild mottle; PCRMV = peanut chlorotic ring mottle virus; GEV = groundnut eyespot virus; BICMV = blackeye cowpea mosaic virus; BYMV = bean yellow mosaic virus; SMV = soybean mosaic virus.

^b S = strong reaction.

^c — = negative reaction.

^d + = positive reaction.

^e Some isolates other than the type strain M, can induce lesions on *Chenopodium* sp.

^f M = moderate reaction.

^g W = weak reaction or doubtful.

^h NA = data not available.

ⁱ Tested against cowpea aphid-borne mosaic virus, which is serologically related to BICMV.

visually, but ELISA reactions were assessed by reading absorbance in a Dynatech ELISA reader. Absorbance values 1.5 times higher than healthy controls were considered weak or doubtful, but values greater than three times healthy controls were considered strong positives. Based on serology and host range, PMV appears to be unique (Table 1). Likewise, GEV differs from the others in serology, host range, and nonseed transmissibility (Table 1). Conversely, PStV, PGMV, VPMM, and PCRMV are serologically related to blackeye cowpea mosaic and soybean mosaic viruses, all induce local lesions on *Chenopodium* sp., and none is reported to infect Topcrop bean. Furthermore, these four viruses are serologically related to each other (i.e., PStV to VPMM, PGMV to PStV, and PCRMV to PStV). PStV closely resembles VPMM and PCRMV. However, PGMV and PCRMV are not seed transmitted in peanut. PGMV has a slightly different host range and incites a more severe disease reaction in peanut than do the other viruses.

We propose the name of PStV for the potyvirus isolates infecting peanut and which meet all characteristics described above. Therefore, VPMM and the virus referred to in some reports (10,11) as peanut mild mottle virus should be considered PStV. This decision is supported by a high nucleotide sequence homology between PStV and VPMM (7). Until further comparative work can be completed, we feel that PGMV should be considered a distinct entity. If PCRMV is eventually found to be seed transmitted in peanut (seedlings from 308 seeds were negative), then we propose that this virus also be considered a variant of PStV.

The committee did not reach a consensus concerning a single name for the disease caused by PStV since apparently many isolates can induce unique symptoms characteristic of each isolate, such as blotch or mild mottle.

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