



## First report of *Horsegram yellow mosaic virus* infecting *Phaseolus vulgaris* in Sri Lanka

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Bean (*Phaseolus vulgaris*) is one of the most important vegetables in Sri Lanka. In 1999, a new bean disease was reported from the town of Balangoda, Sri Lanka. Symptoms included a bright yellow mosaic pattern on the leaves, rugosity, reduced leaf size and stunting of the entire plant. Depending upon the time of infection, plants either produced fewer flowers and pods or none at all. Since its discovery the disease has spread to most bean growing areas of the island. In 2009, six samples showing symptoms were collected from different districts of Sri Lanka for viral analysis. All were tested by ELISA for *Tomato spotted wilt virus*, *Impatiens necrotic spot virus*, *Cucumber mosaic virus* (CMV), *Southern bean mosaic virus*, and with broad-spectrum antisera for potyviruses and begomoviruses. One sample tested positive for potyviruses and another for CMV; all tested positive for begomoviruses.

DNA was extracted from three of the plants and subjected to rolling circle amplification using Phi 29 (G E Healthcare). Amplicons were cut with *Rsa* I, cloned and sequenced using the Topo blunt vector II (Invitrogen). All samples gave portions of DNA-A and B of a bipartite begomovirus; a Blast search of the GenBank database revealed high sequence identity to *Horsegram yellow mosaic virus* (HgYMV). The complete viral genome was obtained from one sample using specific PCR primers. Component A contained 2735 nucleotides and component B contained 2669 nucleotides (GenBank Accession Nos. GU323321/2). Component A shared between 95.1 and 96.6%, and component B between 93.5 and 96.3% sequence identity with the four available genomes in GenBank (alignments using Clustal V and MegAlign DNASTar). HgYMV has been identified in India where it was found to infect various legumes: bambara groundnut, French bean, groundnut, lima bean, mungbean, pigeon pea, soybean and horse

gram (Muniyappa *et al.*, 2008). All cultivated bean varieties are susceptible and the disease is regarded as the most serious threat to bean production in Sri Lanka. Using the current taxonomic nomenclature (Fauquet *et al.*, 2008) we propose the name *Horsegram yellow mosaic virus*-[Sri Lanka:2009] HgYMV-[LK:09] for this variant of the virus. This is the first report of the virus in Sri Lanka.

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### References

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Figure 1



Figure 2



Figure 3

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