

Alternative hosts and seed transmissibility of soybean blotchy mosaic virus

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Abstract

Soybean blotchy mosaic virus (SbBMV) is an important virus of soybean in the warmer regions of South Africa. The presence of the virus is associated with blotchy mosaic symptoms on soybean leaves and significant annual yield losses. The virus is a member of the genus *Cytorhabdovirus* and persists between soybean growing seasons. In this study, multiple specimens of indigenous tree species, other crops and herbaceous weeds surrounding soybean fields with high disease incidences of SbBMV were tested for the presence of SbBMV by RT-PCR in order to determine whether the presence of alternative hosts facilitates the seasonal carry-over of the virus. Commercial soybean cultivars commonly grown in the region were also evaluated for seed transmissibility of the virus. A total of 487 accessions representing 27 different species were screened and one accession each of *Flaveria bidentis*, *Lamium amplexicaule* and *Gymnosporia buxifolia* tested positive for the presence of SbBMV and may serve as possible alternative hosts of SbBMV, allowing over-wintering of the virus when soybean is absent. Symptoms associated with SbBMV infection were not present in any of the 2, 829 seedlings collected from naturally infected SbBMV plants, and none of the 21 seedlings showing various abnormalities and tested by RT-PCR were positive. SbBMV does not appear to be seed transmissible in soybean at an incidence above that which numbers screened would have detected. It was concluded that the presence of alternative plant hosts, functioning as viral reservoirs during the soybean off-season might allow for the re-emergence of the disease early in the soybean production season each year. Future work will investigate the role of *Peragallia caboverdensis*, the leafhopper vector of SbBMV, and specifically the possible propagative transmission of the virus in the persistence of the disease.

Keywords: plant rhabdovirus, alternative hosts; seed transmissibility; soybean.