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Pre-breeding for genetic enhancement of yellow mosaic virus (YMV) resistance in Soybean

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In order to make JS 335 and JS 95-60, two popular soybean varieties of Central India resistant to yellow mosaic virus (YMV) disease, inter-specific hybridization was effected with the resistance donor *Glycine soja*, the wild progenitor of cultivated soybean. Out of the 95 BC<sub>2</sub>F<sub>4</sub> lines derived from JS 335 x *G. soja* that were screened at PAU, Ludhiana, a hot spot for YMV disease, only two lines appeared to be resistant. The resistant plants were crossed back with recurrent parent to obtain BC<sub>3</sub>F<sub>1</sub> and BC<sub>4</sub>F<sub>1</sub> seeds. A molecular marker linked to the target gene was used to select resistant plants. Out of 131 progenies in BC<sub>3</sub>F<sub>2</sub> and BC<sub>4</sub>F<sub>1</sub>, only 73 progenies carried the gene for YMV resistance. Similarly, out of 123 BC<sub>2</sub>F<sub>2</sub> and BC<sub>3</sub>F<sub>1</sub> progenies of JS 95-60 x *G. soja*, 13 found to carry the gene for YMV resistance. The selected progenies exhibited phenotypic similarity with the respective recurrent parents i.e. JS 335 and JS 95-60. Selected genotypes were inoculated with infectious clones containing YMV genome and through RT-PCR the viral copy numbers quantified for these genotypes. Based on the symptoms severity and viral copy number genotypes were grouped into resistant, moderately resistant, and susceptible. Further testing of the plants for yield and YMV resistance is on under both controlled and filed conditions (hot spot).