

PILOT SCREENING OF TORIA GERMPLASM AGAINST BROOMRAPE

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Two hundred fifty genotypes of *Brassica campestris* var. *toria* L. were evaluated against broomrape infestation under natural field conditions. Thirty-three accessions were affected with broomrape infection and its incidence was ranged between 2 to 38 per cent and rests were unaffected with the parasite.

Keywords : Broomrape (*Orobanchae aegyptica* Pers.); Phanerogamic parasite; Rapeseed-mustard; Toria (*Brassica campestris* L. or *Brassica rapa* L. var. *toria*).

India is the second largest rapeseed-mustard producing country in the world and its share in the world's acreage and production is 20.9 per cent and 12.8 per cent respectively. Rapeseed-mustard group of crops play a key role in the Indian economy and they cover an area of 6 million hectares with 6 million tones annual production. The broomrape (*Orobanchae aegyptica* Pers.), is phanerogamic parasite (total root parasite) and parasitizes rapeseed-mustard crop considerably in India¹. The broomrape problem is more serious in Alwar, Swaimadhapur and Bharatpur districts of Rajasthan and certain parts of Bihar and Assam also². Affected plants remain stunted and some times it may die due to depletion of nutrients by the parasite through parasitic root, i.e., haustoria³. Broomrape is a obligate parasite and a single broomrape plant may produce more than a million seed⁴. Since broomrape is a serious problem in Bharatpur District an attempt has been made to screen toria germplasm in our Centre.

Two hundred fifty genotypes of *Brassica campestris* var. *toria* (NRCT 1 to NRCT 250) were grown in augmented design at National Research Centre on Rapeseed-Mustard, Sewar, Bharatpur. Each accession was sown in two rows of 3 m length with spacing of 10-15 cm and 30 cm plant-to-plant and row-to-row respectively. Recommended doses of fertilizer and agronomic practices

were followed as and when needed. Broomrape infestation data were recorded at the blooming stage of the parasite (more than 50 per cent flowering of the broomrape). Broomrape infested plants of toria germplasm were scored as susceptible category and healthy plants of each genotypes were also counted for calculating the percentage of broomrape infestation of toria germplasm.

Among the 250 toria germplasm lines 33 were affected with the broomrape root-parasite and its incidence on toria germplasm was ranged between 2 to 38 per cent (Table 1). Less than 10 per cent infestation was noticed on seventeen accessions, viz., NRCT, 2, 4, 5, 9, 14, 15, 19, 20, 41, 86, 89, 90, 96, 115, 209, 211 and 212. 10-20 per cent plants were infected of twelve genotypes namely NRCT 1, 3, 6, 7, 8, 11, 12, 13, 17, 18, 101 and 102 and more than 21 per cent and above incidence was recorded only on four accessions namely NRCT 103, 105, 106 and 107. These genotypes seem to be more prone to this parasite. Rests of the germplasm lines were free from broomrape infestation, which will be a good source to utilize in productive breeding programme of our country. Singh⁵ reported some of the promising accessions of toria for Biological yield/ plant (>40g) NRCT 23, NRCT 74, NRCT 109, NRCT 111, NRCT 120 and NRCT 127 and for harvest index (>40%) NRCT 29, NRCT 100, NRCT 141 and NRCT 235 based on their economic performance

Table 1. Field evaluation of toria germplasm against broomrape infestation.

Percentage broomrape infection	Number of genotype	Name of accession
No infection	217	NRCT 10 to 16, NRCT 21 to 40, NRCT 42 to 85, NRCT 87 to 88, NRCT 91 to 95, NRCT 97 to 100, NRCT 104, NRCT 108 to 114, NRCT 116 to 208 NRCT 210 and NRCT 213 to 250
Up to 10	17	NRCT 2, 4, 5, 9, 14, 15, 19, 20, 41, 86, 89, 90, 96, 115, 209, 211 and 212
10-20	12	NRCT 1, 3, 6, 7, 8, 11, 12, 13, 17, 18, 101 and 102
More than 21	04	NRCT 103, 105, 106 and 107
Total	250	

and these promising accessions were also free from broomrape infestation.

References

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