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Short Communication

Screening of *Sem* and Tomato Germplasm Against Root-knot Nematode (*Meloidogyne incognita*)

ARJUN LAL, RAJAN AND V. K. MATHUR

National Bureau of Plant Genetic Resources, New Delhi

National Bureau of Plant Genetic Resources, New Delhi is maintaining a large number of exotic and indigenous collections in *sem* (*Lablab purpureus*) and tomato (*Lycopersicon esculentum*) including some wild species which have already been evaluated for various agro-botanical characters. Therefore, to supplement the catalogues further with additional information, all the available collections of *sem* and tomato were screened against root-knot nematode (*Meloidogyne incognita*), which is a serious pest of both the crops resulting in considerable damage alone or in association with other microorganisms.

All the available collections/lines of *sem* (1361 accessions) and tomato (2167 accessions) were screened against *M. incognita*. In the preliminary screening trial, 20 days old seedlings of tomato (raised in nematode free soil) and *sem* seeds were planted in root-knot infested soil (having inoculum level of 5 larvae/g of soil) contained in earthen pots. After 45 days, roots were gently washed and number of galls per plant were counted under stereobinocular microscope. Collections/lines showing escape or resistance were retested for second season by inoculating each plant of *sem* and tomato with 1000 freshly hatched larvae of *M. incognita* under controlled conditions. Observations were recorded after 45 days of inoculation. In the collections/lines where galls were not observed, roots were stained in acid fuchsin lactophenol and checked under stereobinocular microscope to confirm the absence of root-knot nematode in the roots. Pusa Early Dwarf in tomato and IC-46126 in *sem* were used as controls. Results of the final screening are presented in Table 1.

TABLE 1. EVALUATION OF *sem* AND TOMATO COLLECTIONS/LINES AGAINST *Meloidogyne incognita*

Crop	Category	Collections/lines
Sem	Resistant	IC-770/V-16, IC-77002/Sel 68
	Moderately resistant	IIHR-164, IC-46158
Tomato	Resistant	EC-129606, EC-129606/P-1
	Moderately resistant	EC-486, EC-493, EC-8974, EC-12527, EC-27412, EC-65975, IC-76991, IC-76993, IC-76995, IC-76996, IC-76997, and La Bonita

An interesting observation made was that, in moderately resistant lines, the larvae had penetrated the roots and were in different stages of development but

no adult female could be seen even after 45 days of inoculation, suggesting thereby that either the development of the nematode is slowed down or it is unable to complete its life-cycle due to unfavourable host.

Amongst resistant/moderately resistant collections of *L. esculentum*, yield based on ten marketable fruits was recorded as follows : EC-129606 (860 g); EC-129606/P-1 (910 g), EC-27412 (1200 g) and IC-76996 (710 g). Remaining collections found moderately resistant gave yield less than 400 g. Wild species of tomato *L. hirsutum* (EC-486) and *L. peruvianum* (EC-65975) produced 20 g and 22 g fruits, respectively. These studies show that in root-knot infested soils, EC-129606/P-1 can be grown without much loss in their yield.

In *sem*, moderately resistant lines IIHR-164 and IC-46158 were found to be promising lines with respect to green pod weight, number of clusters, number of pods and seed yield per plant.