

# Screening of Brinjal Germplasms against *Meloidogyne Incognita* under Arunachal Pradesh Conditions

Ksh. Sumita<sup>1</sup>, R. K. Patidar<sup>2</sup>

<sup>1,2</sup>AICRP on Nematodes, Central Agricultural University, Imphal, 795004

**Abstract:** Screening of brinjal germplasms against root-knot nematode, *Meloidogyne incognita*, was evaluated under pot conditions. The results revealed that 07 germplasms were moderately resistant while, the remaining germplasms were found to be either susceptible or highly susceptible.

**Keywords:** *Meloidogyne incognita*, screening, moderately resistant, brinjal

## 1. Introduction

In India, brinjal is one of the important vegetable crop after potato, tomato and onion (Anonymous, 2013) but production is greatly affected by many pests and pathogens. Among them, nematodes species associated with brinjal namely, root-knot nematodes are considered as one of the major production constraints of brinjal cultivation. *Meloidogyne incognita* is responsible for 33.7 per cent yield loss in brinjal (Reddy, 1986). Development of resistance in pathogen against the chemicals, government today demands an alternate method for management strategies and use of resistance varieties is given top priority as an economically friendly and economic venture. Therefore, attempts were made to screen few brinjal germplasms against *M. incognita* in Arunachal Pradesh.

## 2. Materials and Methods

A total of 42 brinjal germplasms were screened in pot condition at College of Horticulture and Forestry, CAU, Pasighat against root-knot nematode, *M. incognita*. Earthen pots of 500 gm capacity were filled with steam sterilized mixed soil (sandy loam soil, dried cowdung and sand @ 2:1:1, respectively). Three seeds of line were sown in each pot. The population of root-knot nematode was maintained at least 1J<sub>2</sub>/g soil by externally adding inoculums after 10 days of germination. Each treatment was replicated four times with one check arranged in CRD. The plants were watered regularly and cultural practices were carried out as and when necessary. Plants were uprooted 60 days after sowing and washed carefully under stream of water. Number of galls and egg masses per root system were counted and recorded. Reaction of the cultivars against root-knot nematode was ascertained following the gall index given by Taylor & Sasser, 1978.

**Table 1:** Reaction of different brinjal germplasms to *M. incognita*

Reaction	Root gall index	Entries/lines
<b>Highly resistance</b> 1-2galls /root system	0.1-1.0	-
<b>Resistant</b> 3-10galls / root system	1.1-2.0	
<b>Moderately resistant</b> 11-30galls/root system	2.1-3.0	IC-1446655,IC-089867,IC-089510,EC-316258,EC-136200,IC-133920,IC-134942
<b>Susceptible</b> <100galls/root system	3.1- 4.0	EC-316268-A,IC-074262,IC-089846,IC-089856,IC-127237,IC-136440,IC-131075,IC-146654,IC-354624,IC-127242,EC-169089,IC-144138,IC-146667,IC-354687,IC-133920-A,IC-136383,EC-304548
<b>Highly susceptible</b> >than 100 galls/ root system	4.1-5.0	EC-144139-D,EC-169786,EC-305046,EC-311615,EC-316213-2,IC-089815,IC-089818-1IC-146067IC-146654-AIC-354727IC-354749IC-127162IC-127216IC-127241IC-089824IC-089910-CIC-144080IC-144144

## 3. Result

Gall index indicated that out of 42 brinjal germplasms, seven germplasms were found to be moderately resistant against this nematode pest. Rest of the germplasms were either susceptible or highly susceptible to *M. incognita*. Alamet *et al.* (1974) reported that Giant of Banaras, Black beauty and Golaof brinjal showed low root-knot development as compared to all the varieties screened. The reactions of thirteen cultivars of brinjal to *M. incognita* was

studied under pot conditions by Kohinoor *et al.* (2014), out of which Uttora cultivar was found to be moderately resistant. Sunita & Sumita (2015) screened sixteen germplasms against *M. incognita*, where all the germplasms showed susceptible to highly susceptible reaction.

## 4. Acknowledgement

The authors are highly obliged to the Project Coordinator, AICRP Nematodes in Cropping System for providing

chickpea lines and other required materials. Director of Research, Central Agricultural University, Imphal, Manipuris also highly acknowledged by the author for providing necessary infrastructural facilities to carry out the research work.

## References

- [1] Alam, M.M.; Khan, A.M. and Saxsena, S.K. (1974). Reaction of some cultivated varieties of eggplant, pepper and okra to root-knot nematode, *Meloidogyne incognita*. *Indian J. of Nematol.* (4): 64-68
- [2] Anonymous (2013). National Horticulture Board Statistics, Final Area & Production estimates for Horticulture Crops for 2012-2013. Online [http://nhb.gov.in/area%20\\_production.html](http://nhb.gov.in/area%20_production.html).
- [3] Kohinoor, B.;Nazmul, H.; Sanjida, K.;Aminuzzaman, F.; Md. Asaduzzaman and Nasim, A. (2014): Evaluation of brinjal cultivars (*SolanumMelongena*) against root-knot nematode *Meloidogyne*SppApp. *Sci. Report.* **7** (3): 129-134
- [4] Reddy, P.P. (1986). Analysis of crop losses in certain vegetables due to *Meloidogyne incognita*. *Int. Nematol. Network Newsl.* **3**: 3-5
- [5] Sunita, Th. and Sumita, Ksh. (2015). Screening of brinjal germplasms against root-knot nematode (*Meloidogyne incognita*). *World J. of Pharmacy & Phar. Sci.***4**(11): 1300-1303
- [6] Taylor, A.L. &Sasser, J.N. (1978). Biology, identification, and control of root-knot nematodes (*Meloidogyne* sp.). *Coop. Publ. Dep. Plant Pathol.*, North Carolina State Univ., and U.S. Agency Int. Dev., Raleigh, N. C.

