

**SCREENING OF BRINJAL GERMPLASM/ VARIETY FOR
RESISTANCE AGAINST ROOT- KNOT NEMATODE,
Meloidogyne incognita.**

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ABSTRACT

Root knot nematode *Meloidogyne incognita* is considered as one of the limiting factor for reducing the production and productivity of brinjal. Cultivation of resistant germplasm/variety is the most economical as well as ecological viable means for combating this nematode infestation. Among 200 germplasm/variety of brinjal screened against *M. incognita* for resistant reaction, eleven varieties viz. BB-45C, BB-49, Athagarh local, Gachha baigana, Ghatikia white, Kantimundi, Kampagarh local, Kantabaigan, KS-224, LB-30 and LB-44 were resistant to *M. incognita*. 64 germplasm /variety exhibited moderately resistant, 99 germplasm /variety exhibited susceptible and 26 germplasm/ variety exhibited highly susceptible reaction to the test nematode species. None of the screened variety was shown highly resistant reaction.

KEY WORDS: Brinjal, Root knot nematode, Resistance

Brinjal, also known as egg plant is one of the most widely grown vegetable crops in India as well as in odisha. It's fruits are rich source of nutrients having a unique range of health benefit including an ability to build strong bones and teeth, prevent osteoporosis, control blood sugar level, promotes weight loss and stimulate gastric juice secretion. The production and productivity of brinjal is affected by number of insect pest and pathogen including nematode. Root knot nematode, *Meloidogyne incognita* is one of the most

destructive plant parasitic nematode, which not only cause significant yield loss to the tunes of 27.30- 32.00 % (Bhatti and Jain, 1977; Darekar and Mahase, 1988) but also deteriorate the product quality. The chemical means of nematode control by application of nematicides posses enormous health hazards both to human beings and beneficial fauna and flora of the soil. Growing of a nematode resistant cultivar is the most economical and eco-friendly practice for the management of the nematodes under field condition.

Keeping in view the importance of the crop and economic losses caused by this nematode to brinjal crop, a pot culture experiment was conducted to locate resistant sources of brinjal against *M. Incognita*.

TABLE:1 Reaction of brinjal germplasm /variety against *Meloidogyne incognita* .

Sl. No.	Germplasm/ Varieties	No.Of Varieties	Resistance reaction
1.	Nil	0	Highly Resistant (HR)
2.	BB-45C, BB-49, Athagarh local, Gachha baigana, Ghatikia White, Kantimundi, Kampagarh local, Kanta baigana,KS-224, LB-30, LB-44.	11	Resistant (R)
3.	BB-1, BB-2, BB-3, BB-3-1, BB-3-2, BB-1-3, BB-5, BB-5-2, BB-6, BB-9, BB 16-3, BB-48, Bhanjanagar local, Baramunda local, Black beauty, Banaras , Azad kranti, ARU-1, ARU-2C, Arka keshar, Arka nandi, Keonjhar local, LB-13, LB-25, LB-28, LB-31, LB-38, LB-39, LB-55, Long-13, Long white cluster, Mukta keshi, Neelam long, Pusa kranti, Pusa sel.-2, P. Br. 129-5, Pant Rituraj, Pant Samrat, Rajendra baigan, Round- 4, Rajendra Annapurna, Suchitra, T-3, Utkal madhuri, DBSR- 91, DBSR 330-1-4, DBSR-412-16, JC-2, JE64-1-2, CH-167, Cuttack Pendi, BB-67, B 7-1, EC- 16-9089, EC- 467268, Utkal Jyoti, Mayurbhanj local, Green Queen, Century, Semlish, Baulamala, Velura, Tusar kanti, P.Br.-5,	64	Moderately Resistant (MR)
4.	BB-7, BB-13, BB-13-2, BB-26, BB-44, BB-60, Blue kajol, Blue Diamond, Brinjal green Star, BB-52, BH-1, BH-2, Aruna-682, Green Samrat, H-4, MHB-2, MHB-72-31, MHB 40-4-8-1, MHB-683, Nayagarh Local, NDB-487, NDB-484-2, Nisha Improved, P.Br-6, P.Br-7, P.Br -91-2, Round Brinjal, Sel.-9-4, SBP-White, EC- 305061, EC- 305065, EC- 305067, KT-4, C-2, SM.6-6, Brinjal Green Rocket, BB-54, Utkal Tarini, Singhnath, BB-64, BB-68, BB-85, EC- 305048, IC-89947, IC- 90123, IC-90851, Malipada Local, Manjari Gota, Baisali, Swarna Shyamali, Swarna Shakti, Swarna Ajaya, Nayan Kajol, Tarapuri, Khat Khata, Mankadpada, swarna Shree, Krishna, Rewati, Bio-Kuku, Harsul, Blue star, VNR- B-5, Akshita-30, Blue Star oval	99	Susceptible (S)

	hybreed, 8V0577EG, Jeeva, Baisakhi-B, Rupali, Muktamoti, TPL, Charpalia, Navina, Suruchi, Blue magic, Lipuri, Dhoba, Tarachand, Dhala muktakeshi, Luduki, Dhala Kantia, Dhala ninkantia, Nandhari, VNR-14, ZK(white), Hajari, Tarini, Pipli, Dhala baigan, Thuli baigan, Lamba thulibaigan, Gola thulibaigan, Kalijhati, Madi baigana, Dum baigan, Chitra baigan, BB 5-1, Blue samrat, Baisakhi-A.		
5.	Annapurna-I, Annapurna-II, Annapurna-III, Annapurna Blue master, Green diamond Long, Local makra, MHB-1, NDH 26-1, Pusa purple long, PLR-1, Pusahybrid-13, Sel.-3, Dhauli-P, JC-7, IC-127020, IC-127027, IC-127088, P.5-8, Punjab Sadabahar, Punjab Nagina, Swarna mani, Keshi Sandesh, BB-55, EC-316225, IC- 13332, Swarnamani.	26	Highly Susceptible (HS)

A total of 200 brinjal germplasm /varieties were screened against root knot nematode in net house condition. Earthen pots of 500gm capacity were sterilised with formaldehyde solution (1.0%) and filled with autoclaved soil (15lbs/20 min). Each pot was sown with three seeds of each germplasm/ variety. One week after germination of the seed, the pots were thinned to keep one healthy seedling of each germplasm/variety and were inoculated with 500 freshly hatched 2nd stage juvenile of *M. Incognita* collected from already maintained pure culture. Each entry was replicated four times. A susceptible check Pusa purple long was maintained along with other varieties for comparison. After 45 days of inoculation, plants were uprooted, roots were washed under tap water and gall and egg masses were counted. The germplasm/ varieties were rated for resistant reaction using **1-5 scale**.

- 1- No gall no egg mass –Highly Resistant (HR)
- 2- 1-10 galls /root system with egg mass—Resistant (R)
- 3- 11-30 galls /root system with egg mass—Moderately resistant (MR)
- 4- 31-100 galls /root system with egg mass—Susceptible (S)
- 5- More than 100galls/root system with egg mass—Highly susceptible(HS)

Among 200 germplasm / varieties of brinjal screened against *M. Incognita*, eleven varieties viz. BB-45C, BB-49, Athagarh local, Gachha baigan, Ghatikia white, Kantimundi, Kampagarh local, Kantabaigan, KS-224, LB-30 and LB-44 were resistant to *M. Incognita*. 64 germplasm/ varieties exhibited moderately resistant, 99 varieties exhibits susceptible and 26 varieties exhibited highly susceptible reaction to *M. Incognita* (Table-1), none of the screened varieties were shown highly resistant (HR) reaction. Kaur and Dhatt 2017 also screened some cultivated and wild brinjal germplasm for resistance against *M. Incognita*.

The resistant germplasm/varieties identified as the important source of disease resistant against root knot nematode and in future with detection of reliable markers linked to

resistance in these species can enable them to become an integral part of resistance breeding programmes against root knot nematodes.

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