



Screening of brinjal (*Solanum melongena*) varieties/hybrids against two-spotted spider mite (*Tetranychus urticae*)*

GURPREET SINGH WALIA¹, MANMEET BRAR BHULLAR² and PARAMJIT KAUR³

Punjab Agricultural University, Ludhiana 141 004

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Brinjal or eggplant (*Solanum melongena* L.) is a popular vegetable crop grown throughout India and is a good source of vitamins and minerals. Many pests including aphids, thrips, fruit borer and mites attack this crop (Gopalakrishnan 2007) and spider mite, *Tetranychus urticae* Koch is one of the major challenges faced by brinjal growers. Eggplant, particularly when grown in the summer, has serious problems with *T. urticae* (Singh and Raghuraman 2011). A few studies are available in literature regarding the response of different varieties/hybrids of brinjal to infestation of *T. urticae* (Baskaran 2006). Keeping in view the seriousness of two-spotted spider mite on brinjal and scanty information available on different brinjal varieties in India and Punjab in particular, the present studies were undertaken to find out some brinjal variety/hybrid resistant or susceptible to the spider mites so that it can form a component of integrated pest management programme.

Seven varieties/hybrids of brinjal namely Jamuni Gola, Punjab Barsati, Punjab Moti, Punjab Neelam, Punjab Sadabahar and BH 1 and BH 2 were evaluated during 2007 for oviposition response, feeding preference and extent of damage caused by *T. urticae*. The oviposition response and feeding preference was studied at 27±1°C in biological oxygen demand (BOD) incubator in Acarology laboratory, while extent of damage caused by mites was studied on potted plants at flowering stage under screen house conditions at Entomological Research Farm of the department. Oviposition response of the mite was studied using 15 leaf-discs of each variety/hybrid by releasing 1 gravid female mite on each leaf-disc. The numbers of eggs laid were recorded 1, 2 and 3 days after releasing mites. Feeding preference of mite was studied through free-choice method. A total of 200 females prestarved for 30 min. were

released in the centre of Tanglefoot marked circle (15 cm diameter) in a Petri dish. Number of mites found on leaf-discs of different varieties/hybrids or found trapped in the Tanglefoot® barrier or found still wandering in the circle or found dead in the Petri-plate were recorded 6 hr after releasing the mites. For extent of damage, a ring of Tanglefoot® barrier was applied on 3" apical portion of shoots to check the movement of mites below the selected part. Female mites were released @ 100/shoot of different varieties/hybrids during morning time. Observations were recorded 5, 10, 15, 20, 25 and 30 days after releasing the mites. The damage symptoms were graded into following 5 grades as : grade 0, leaves free of any symptoms or healthy leaves; grade 1, leaves exhibiting about 25% yellowish-white symptoms; grade 2, leaves exhibiting about 50% yellowish-white symptoms, with slight webbing; grade 3, leaves exhibiting about 75% yellowish-white symptoms, with large webbing; and grade 4, leaves exhibiting more than 75% to whole leaf-area yellowish-white symptoms, dense webbing, drying up or falling off of leaves.

The brinjal variety Jamuni Gola recorded maximum oviposition and was at par to variety Punjab Neelam, Punjab Sadabahar and Punjab Barsati. However, brinjal hybrid BH 2 recorded minimum oviposition and was at par to BH 1 (Table 1). In general, the varieties were found more suitable for egg laying than the hybrids.

In feeding preference, the mites showed maximum preference for variety Punjab Sadabahar (20.67%), followed by Punjab Neelam (18.00%), but minimum mites were found on Punjab Barsati variety (4.50%) (Table 2). The data revealed that 75.34% mites were able to locate the different varieties/hybrids successfully while 12.50% were unable to settle on any of the brinjal variety/hybrid but were found wandering in the central area. However, no mite was found dead, but 12.16% of mites were found trapped in the Tanglefoot® barrier. Overall comparison revealed that mites preferred the variety Punjab Sadabahar the most but had a least preference for the variety Punjab Barsati.

* Short note

¹ Field Officer (Sangrur), Sir Rattan Tata Trust Cell;

² Acarologist (e mail: manmeetbb@rediffmail.com), ³ Assistant Acarologist (e mail: paramjitkaur@pau.edu)

Table 1 Oviposition response of *Tetranychus urticae* on different brinjal varieties at different durations after release of mites at 27±1°C

Variety	Mean number of eggs laid/female after indicated hours		
	24 hr	48 hr	72 hr
Jamuni Gola	1.47 (1.52)	2.47 (1.76)	2.87 (1.89)
Punjab Barsati	2.00 (1.67)	1.47 (1.52)	2.27 (1.70)
Punjab Moti	0.93 (1.32)	1.27 (1.40)	1.13 (1.39)
Punjab Neelam	0.60 (1.22)	2.20 (1.72)	2.80 (1.85)
Punjab Sadabahar	1.47 (1.49)	2.13 (1.68)	2.40 (1.75)
BH 1	1.00 (1.33)	1.40 (1.46)	0.93 (1.32)
BH 2	0.53 (1.20)	1.13 (1.39)	0.67 (1.23)
CD ($P=0.05$)	(0.32)	(NS)	(0.40)

Parentheses are arc sine transformations

Table 2 Feeding preference of two spotted spider mites, *Tetranychus urticae* on different brinjal varieties at 27±1°C

Variety	Number of mites found on different brinjal varieties after 6 hours of feeding	
	Mean	Per cent
Jamuni Gola	23.33 ± 3.01	11.67 (3.55)
Punjab Barsati	9.00 ± 1.00	4.50 (2.34)
Punjab Moti	14.00 ± 2.00	7.00 (2.82)
Punjab Neelam	36.00 ± 6.56	18.00 (4.17)
Punjab Sadabahar	41.33 ± 1.16	20.67 (4.67)
BH 1	12.00 ± 2.00	6.00 (2.64)
BH 2	15.00 ± 3.61	7.50 (2.64)
CD ($P=0.05$)		(0.48)

Parentheses are arc sine transformations

Table 3 Extent of damage done by two spotted spider mite, *Tetranychus urticae* on different brinjal varieties

Variety	Mean damage grades (Days after release – DAR of 100 female mites/3" apical shoot)					
	5 DAR	10 DAR	15 DAR	20 DAR	25 DAR	30 DAR
Jamuni Gola	0.66	1.00	1.61	2.60	3.66	4.00
Punjab Barsati	0.28	1.00	1.33	2.33	3.19	3.66
Punjab Moti	0.41	1.00	1.33	2.38	3.27	4.00
Punjab Neelam	0.66	1.02	1.66	2.64	3.69	4.00
Punjab Sadabahar	0.63	1.02	1.66	2.66	3.97	4.00
BH 1	0.33	0.66	1.21	1.66	2.33	2.66
BH 2	0.33	0.63	1.33	1.66	2.66	3.66
CD ($P=0.05$)						

Varieties (A) : 0.38
 Days (B) : 0.36
 Interaction : NS

Per cent mites

(a) Successful in finding different varieties, 75.34; (b) Trapped in Tanglefoot, 12.16; (c) Found dead in circle, 0.00; (d) Wandering in circle, 12.50.

Table 3 revealed up to 25% yellowish-white specklings on leaves in different varieties except in hybrids BH 1 and BH 2 when observed 10 days after release. At 20 days, 50% or more yellowish-white symptoms in different varieties except in hybrids BH 1 and BH 2 which has minimum damage grade (1.66) were observed. The damage was maximum in varieties Punjab Sadabahar, Punjab Neelam, Jamuni Gola and Punjab Moti (damage grade 4.00) while hybrid BH 1 had minimum damage grade of only 2.66. However, Punjab Barsati and BH 2 showed similar damage grade of 3.66. Overall data revealed that extent of damage was maximum in variety Punjab Sadabahar and minimum in hybrid BH 1.

No information is available on the oviposition response and feeding preference by *T. urticae* on these brinjal varieties/

hybrids. It indicated that continuous screening of new brinjal varieties/hybrids is essential to find out tolerant genotypes to fit in IPM programmes.

SUMMARY

It can be summarised from these studies that brinjal varieties Punjab Sadabahar and Punjab Neelam were the most susceptible while hybrid BH 1 was relatively less preferred to two-spotted spider mite (*Tetranychus urticae*) attack. It indicated that variability exists in brinjal varieties/hybrids and continuous screening of new genotypes is essential to find out tolerant genotypes which can fit in IPM programmes.

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CORRECTION

The authors of article “Yield and nutrient uptake of isabgol (*Plantago ovata*) in response to sowing dates and spacing” desire that in *The Indian Journal of Agricultural Sciences* 80(12), December 2010 issue, on page no. 1102 in lines 12 and 13 in the second column may be read as in subplots with 4 replications in place of in subplots with 5 replications and on page 1103 in Table 1 seed yield of row spacing may be read as tonnes/ha in place of q/ha as given below.

In Table 1 Last column of seed yield (tonnes/ha)

Treatment	2006–07	2007–08	Mean
<i>Date of sowing</i>			
15 November	0.74	0.76	0.75
30 November	0.67	0.52	0.59
LSD ($P = 0.05$)	NS	0.10	
<i>Row spacing</i>			
22.5 cm	0.73	0.74	0.73
30 cm	0.68	0.54	0.61
LSD ($P = 0.05$)	0.03	0.18	

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