SHORT COMMUNICATION

Ovipositional Preference of Mustard Sawfly, *Athalia proxima* Klug on some *Brassica* Germplasm and Varieties*

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Fifteen varieties/germplasm accessions of rapeseed mustard were evaluated for ovipositional preference by mustard sawfly. The experiment was conducted in earthen pots, under nylon net during two consecutive years 2004-05 and 2005-06. RK 2010, RK 2015, Kanti, Urvasi, RK 2011 and RK 2004 were less preferred by gravid female sawfly to lay eggs on them, while RK 2006, Rohini, RK 2013, Basanti, Kesari and Varuna were most preferred for egg laying. Reduced egg hatchability was observed on the variety RK 2011, RK 2010, RK 2004, Kanti, RK 2014, RK 2015, PR 4001 and Urvasi.

Key Words: Ovipositional preference, Mustard sawfly, *Brassica*, Germplasm

Mustard sawfly, *Athalia proxima* Klug is a serious pest of rapeseed mustard crop at seedling stage and it causes about 25 per cent reduction in yield (Sachan, 1990). Seedlings are very sensitive stage and very less time is available to manage this pest. It is best to use preventive measures such as use of resistant variety to overcome this pest problem. The presence of secondary plant substances such as glycosides in mustard are known to govern preference in host plant. Some biophysical characters of host plant are also responsible for this phenomenon (Painter, 1951).

The experiments were conducted during two consecutive years (2004-05 and 2005-06) under nylon net. For this purpose, well manured soil filled earthen pots were used. Seeds of all 15 varieties/germplasm (Table 1, 2) were sown on 25th October in three replication and the pots were arranged in three groups fallowed by covered with separate nylon net measuring 180×100×110 cm (length×width×height). Five pairs of adult sawfly were released daily in each replication block from the time two true leaf stage is attained and repeated every 5 days. Number of egg layings on all five plants of each replication was counted with the help of 20X hand lens. After seven days, all emerging larvae were counted consequently damage done by them were recorded weekly. The data so collected were analyzed in completely randomized design and t-test was used to compare the effect of biophysical characters on per cent egg layings.

Screening of various germplasm accessions/varieties of mustard under net house conditions indicated that RK 2010, RK 2015, Kanti, Urvasi, RK 2011 and RK 2004 were at par and significantly less preferred by gravid female sawfly to lay eggs on them, which registered 7.67, 8.00, 9.00, 10.33, 10.33 and 12.00 eggs/5 plants during 2004-05, respectively and 8.00, 8.00, 8.67, 11.67, 12.33 and 8.67 egg/5 plant during 2005-06, respectively. RK 2006, Rohini, RK 2013, Basanti, Kesari and Varuna were most preferred by female sawfly on which 23.33 to 19.67 eggs/5 plants and 25.00 to 19.33 eggs/5 plants were laid during 2004-05 and 2005-06, respectively. Egg hatchability of sawfly was significantly reduced on RK 2011, RK 2010, RK 2004, Kanti, RK 2014, RK 2015, PR 4001 and Urvasi which registered 75.46, 77.21, 76.26, 77.78, 78.15, 79.31, 79.40 and 80.58 per cent egg hatching during 2004-05, respectively and 78.93, 78.69, 79.95, 81.25, 79.61, 79.73, 82.80 and 82.00 per cent egg hatching during 2005-06, respectively. Whereas, RK 2006, Varuna, Maya and RK 2003 were most suited for egg hatchability which recorded 97.00 to 94.17 and 95.88 to 92.27 per cent during 2004-05 and 2005-06, respectively. After that the significantly reduced population of sawfly larvae was observed on RK 2010, RK 2015, Kanti, Urvashi, RK 2004, RK 2011, RK 2014 and RK 2003 and it varied from 4.52 to 7.67 and 5.00 to 8.00 larvae/5 plants during 2004-05 and 2005-06, respectively, whereas higher population was registered on RK 2006, Rohini, RK 2013, Basanti and RK 2001 which was varied from 14.67 to 11.00 and 15.00 to 11.00 larvae/ 5 plants during 2004-05 and 2005-06, respectively.

Sachan and Sumati (1985) and Sachan and Ujagir (1989) reported that mustard cultivar Varuna had more eggs than other cultivars which is in agreement with

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Table 1. Ovipositional preference of *A. proxima* on different germplasm/varieties of *Brassica* under net house condition during 2004-05

Entries	Number of eggs/5 plants		Percent hatchability		Number of larvae/5 plants		Leaf surface
RK 2001	19.33	(4.45)	83.98	(66.41)*	11.00	(3.32)	Hairy
RK 2002	16.67	(4.12)	94.17	(76.03)	8.33	(2.97)	,,
RK 2003	12.33	(3.53)	95.10	(77.21)	7.67	(2.81)	,,
RK 2004	12.00	(3.49)	76.26	(60.84)	7.00	(2.72)	,,
RK 2005	17.00	(4.16)	84.29	(66.65)	8.67	(3.02)	,,
RK 2006	23.33	(4.86)	97.00	(80.06)	14.67	(3.85)	,,
RK 2007	18.00	(4.29)	83.36	(65.93)	9.33	(3.09)	,,
RK 2008	17.00	(4.16)	86.29	(68.27)	9.00	(3.01)	,,
RK 2009	19.00	(4.38)	87.14	(68.99)	10.00	(3.17)	,,
RK 2010	7.67	(2.84)	77.21	(61.49)	4.52	(2.24)	,,
RK 2011	10.33	(3.26)	75.46	(60.28)	6.67	(2.66)	,,
RK 2012	13.67	(3.73)	85.52	(65.29)	8.00	(2.86)	,,
RK 2013	22.67	(4.80)	92.56	(74.17)	11.33	(3.38)	Smooth
RK 2014	11.33	(3.40)	78.15	(62.13)	7.00	(2.72)	,,
RK 2015	8.00	(2.88)	79.31	(62.94)	5.31	(2.41)	,,
Basanti	21.33	(4.66)	89.77	(71.35)	11.33	(3.38)	,,
Kanti	9.00	(3.01)	77.78	(61.88)	6.05	(2.56)	Hairy
Kesari	21.00	(4.59)	90.32	(71.87)	14.33	(3.81)	,,
Maya	14.00	(3.77)	95.57	(77.85)	8.00	(2.86)	,,
PR 4001	19.67	(4.48)	79.40	(63.01)	10.67	(3.27)	,,
Rohini	27.33	(5.26)	79.96	(63.41)	13.00	(3.61)	,,
Vaibhav	16.67	(4.12)	89.21	(70.82)	8.33	(2.96)	,,
Vardan	13.00	(3.65)	81.50	(64.53)	7.67	(2.81)	,,
Varuna	19.67	(4.48)	96.81	(79.71)	10.33	(3.25)	,,
Urvasi	10.33	(3.25)	80.58	(63.85)	6.67	(2.66)	,,
SE m ±	–	0.23	–	1.47	–	0.21	–
CD at 5%	–	0.66	–	4.16	–	0.60	–

Figures in parentheses are square root and arc sin* transformation value

Table 2. Ovipositional preference of *A. proxima* on different germplasm/varieties of *Brassica* under net house condition during 2005-06

Entries	Number of eggs/5 plants		Percent hatchability		Number of larvae/5 plants		Leaf surface
RK 2001	20.00	(4.52)	84.48	(66.80)*	11.00	(3.38)	Hairy
RK 2002	16.00	(4.03)	89.32	(70.93)	9.33	(3.06)	,,
RK 2003	12.67	(3.60)	92.27	(73.86)	8.00	(2.86)	,,
RK 2004	8.67	(3.02)	79.95	(63.40)	6.33	(2.60)	,,
RK 2005	15.67	(4.00)	84.39	(66.73)	9.00	(3.03)	,,
RK 2006	25.00	(5.02)	95.88	(78.29)	15.00	(3.92)	,,
RK 2007	16.67	(4.12)	87.50	(69.30)	9.00	(3.03)	,,
RK 2008	16.67	(4.12)	84.29	(66.65)	9.33	(3.06)	,,
RK 2009	17.00	(4.16)	84.54	(66.85)	9.67	(3.14)	,,
RK 2010	8.00	(2.89)	78.69	(62.51)	5.00	(2.30)	,,
RK 2011	12.33	(3.55)	78.93	(62.68)	7.33	(2.76)	,,
RK 2012	13.67	(3.73)	87.78	(69.54)	9.00	(3.03)	,,
RK 2013	23.00	(4.84)	89.42	(70.82)	11.67	(3.46)	Smooth
RK 2014	12.67	(3.58)	79.73	(63.16)	6.67	(2.66)	,,
RK 2015	8.00	(2.88)	89.42	(63.24)	5.33	(2.38)	,,
Basanti	21.33	(4.66)	81.25	(71.02)	11.33	(3.43)	,,
Kanti	8.67	(3.02)	88.35	(64.34)	6.33	(2.55)	Hairy
Kesari	20.00	(4.50)	88.35	(70.04)	10.33	(3.27)	,,
Maya	15.00	(3.91)	92.31	(73.90)	8.67	(3.02)	,,
PR 4001	18.00	(4.29)	82.20	(65.05)	10.00	(3.18)	,,
Rohini	24.67	(4.50)	84.04	(66.45)	13.67	(3.75)	,,
Vaibhav	13.00	(3.64)	89.77	(71.35)	8.33	(2.94)	,,
Vardan	13.00	(3.65)	83.98	(66.41)	8.00	(2.86)	,,
Varuna	19.33	(4.42)	93.98	(75.06)	10.33	(3.25)	,,
Urvasi	11.67	(3.46)	82.00	(64.90)	6.67	(2.65)	,,
SE m ±	–	0.26	–	1.33	–	0.22	–
CD at 5%	–	0.73	–	3.78	–	0.62	–

Figures in parentheses are square root and arc sin* transformation value

present finding. No statistical difference was found between smooth and hairy leaves for either ovipositional preference, egg hatchability or larval feeding. It is concluded from the present findings that RK 2010, RK 2015, Kanti, Urvasi, RK 2011 and RK 2004 were not only less preferred by female for oviposition but per cent egg hatchability and larval population were also reduced. These genotypes may be used in future breeding programmes to develop mustard sawfly resistant varieties.

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