Int.J.Curr.Microbiol.App.Sci (2018) Special Issue-6: 1466-1470

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Special Issue-6 pp. 1466-1470**
Journal homepage: http://www.ijcmas.com

Original Research Article

Screening of different Cultivars of Ash-Gourd against Red Pumpkin Beetle, *Aulacophora foveicollis* Lucas

Manmohan Singh Bisen[1*], Vikas Singh[1], V. K. Dubey[1] and Dhananjay Sharma[2]

[1]Department of Entomology, Indira Gandhi Krishi Vishvavidyalaya, Raipur (C.G.), India
[2]Department of Horticulture, Indira Gandhi Krishi Vishvavidyalaya, Raipur (C.G.), India
**Corresponding author*

Keywords

Ash gourd, Red pumpkin beetle, Screening, Genotypes, Resistance

A B S T R A C T

The investigation was conducted during kharif season of the year 2014-15 at Horticultural Instructional cum Research Farm of Department of Horticulture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.). In the field, thirty genotypes of ash gourd were screened for their susceptibility against red pumpkin beetle, *Aulocophora foveicollis* Lucas. Among all the genotypes minimum mean leaf infestation were observed in genotypes IAG-10 with 31.56 per cent followed by IAG- 19, IAG-21, IAG-23, IAG-26 and IAG-28 as 36.00 per cent/plant. Whereas, highest mean leaf infestation was recorded on genotypes IAG-8 as 40.00 per cent. Overall mean per cent leaf infestation in pre-flowering, flowering and fruiting stage was recorded as 37.51 per cent.

Introduction

Ash gourd (*Benincasa hispida* Thunb.) belongs to the family Cucurbitaceae is a widely cultivated in India, China, Malaysia, Indonesia, Philippines, Taiwan, Bangladesh and the Caribbean Islands (Tindall, 1986). Green immature fruits and young twigs of ash gourd are used as vegetables, and mature fruits are used for preparing candy, sweets, sun dried delicacy called 'kumra bari' and also for cooking as a vegetable. World famous confectionery known as Petha is prepared using ripe flesh in sugar syrup. Red Pumpkin Beetle, *Aulacophora foveicophora* Lucas is the most serious polyphagous pest of the cucurbits and attacks more than 81 plant species including pumpkin, squash, bottle gourd, cucumber, snake gourd, wax gourd, water melon, etc. and a wide range of fruit crops (Doharey, 1983). It causes 35-75% damage to all cucurbits except bitter gourd and per cent damage rating gradually decreases as the leaf canopy increases (Yamaguchi, 1983). Gill (2003) evaluated four melon cultivars (Punjab Sunehri, MM-28, Punjab Rasia and Hara Madhu) under field conditions in Punjab against red pumpkin beetle (*A. foveicollis*). The lowest adult populations of red pumpkin beetle were recorded on MM-28, and the highest on Punjab Rasila and Hara Madhu. Host preference of red pumpkin beetle, *Aulacophora foveicollis* Lucas was studied

by Deepak *et al.,* (2004) on sixty-eight indigenous germplasm lines of cucumber and they found eight germplasm lines (PCUC7, PCUC36, PCUC47, PCUC66, PCU99, PCUC102, PCUC108 and PCUC110) resistance against red pumpkin beetle.

Materials and Methods

The investigation was conducted during kharif season of the year 2014-15 at Horticultural Instructional cum Research Farm of Department of Horticulture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.). The experiment consists of thirty genotypes of ash gourd, which was laid out in randomized block design with three replications. The observations were recorded on the basis of mean number of adult beetles as well as per cent leaf infestation per plant at different growing stages *i.e.* at. pre-flowering, flowering and fruit setting stages.

$$\text{Percentage leaf infestation} = \frac{\text{No. of infested leaves}}{\text{Total no. of leaves}} \times 100$$

Results and Discussion

In the field, thirty genotypes of ash gourd were screened against red pumpkin beetle, *Aulocophora foveicollis* Lucas for their susceptibility and according to data presented in Table 1, indicated none of variety was free from infestation of red pumpkin beetles.

Per cent leaf infestation at pre- flowering stage

The per cent leaf infestation of different genotypes of ash gourd against red pumpkin beetle had shown non -significant differences, varied from 40.00 to 53.33 per cent leaf infestation per plant at pre-flowering stage. Among all genotypes, minimum leaf infestation was observed in genotypes IAG- 10 with 40.00 per cent followed by genotypes IAG-19, IAG- 28, IAG-18, IAG-22 and IAG-9 as 42.67, 44.00, 45.33, 45.33 and 46.67 per cent, respectively. Whereas, highest leaf infestation was recorded on genotypes IAG-17 as 53.33 per cent. Mean of Per cent leaf infestation in pre- flowering stage was recorded as 47.96 per cent. A similar trend was observed by Khursheed *et al.,* (2013) at pre-flowering stage, in which a varied level of leaf infestation was recorded in Mohini-5300, Khira Paprola and IC-469. Among them, Khira Paprola and IC- 4698 showed maximum leaf infestation as 30.83 and 18.33%, respectively.

Per cent leaf infestation at flowering stage

The per cent leaf infestation of different genotypes of ash gourd against red pumpkin beetle were found to be showed non -significantly differenced varied from 33.33 to 41.33 per cent per plant at flowering stage.

Among all the genotypes, minimum leaf infestation was observed in genotypes IAG-10 with 33.33 per cent leaf infestation followed by IAG-5, IAG-7 and IAG-18 as 34.67 per cent, respectively. Whereas, highest leaf infestation was recorded on genotypes IAG-19 as 41.33 per cent. Mean of Per cent leaf infestation at flowering stage was recorded as 37.38 per cent. The findings are in agreement with Khursheed *et al.,* (2013) who reported at flowering stage, almost all the genotypes showed lower beetle density than pre- flowering stage. Genotype IC-4698 and IC-429994 experienced negligible beetle population. However, Khira Paprola proved more susceptible followed by Mohini-5300 and KCU-006.

Table.1 Per centage leaf infestation of red pumpkin beetle on different genotypes and stages of ash gourd during *Kharif*, 2014-15

Genotypes	Pre-flowering stage	Flowering stage	Fruiting stage	Average leaf infestation
IAG-1	50.67	38.67	25.33	38.22
	(45.37)	(38.37)	(30.19)	
IAG-2	50.67	37.33	30.67	39.56
	(45.37)	(37.64)	(33.57)	
IAG-3	52.00	36.00	29.33	39.11
	(46.13)	(36.77)	(32.70)	
IAG-4	48.00	38.67	28.00	38.22
	(43.82)	(38.39)	(31.89)	
IAG-5	50.67	34.67	25.33	36.89
	(45.38)	(36.00)	(30.14)	
IAG-6	52.00	36.00	26.67	38.22
	(46.13)	(36.80)	(31.06)	
IAG-7	52.00	34.67	28.00	38.22
	(46.15)	(35.96)	(31.80)	
IAG-8	50.67	40.00	29.33	40.00
	(45.37)	(39.20)	(32.76)	
IAG-9	46.67	38.67	28.00	37.78
	(43.06)	(38.37)	(31.78)	
IAG-10	40.00	33.33	21.33	31.56
	(39.20)	(35.24)	(27.47)	
IAG-11	49.33	38.67	29.33	39.11
	(44.60)	(38.39)	(32.70)	
IAG-12	48.00	40.00	25.33	37.78
	(43.82)	(39.10	(30.19)	
IAG-13	50.67	38.67	28.00	39.11
	(45.37)	(38.41)	(31.83)	
IAG-14	49.33	33.33	32.00	38.22
	(44.59)	(35.19)	(34.40)	
IAG-15	48.00	37.33	28.00	37.78
	(43.83)	(37.54)	(31.89)	

Contd…

IAG-16	48.00 (43.82)	38.67 (38.32)	29.33 (32.70)	38.67
IAG-17	53.33 (46.92)	37.33 (37.54)	29.33 (32.70)	39.11
IAG-18	45.33 (42.29)	34.67 (36.02)	30.67 (33.60)	36.89
IAG-19	42.67 (40.74)	41.33 (39.93)	26.67 (31.06)	36.00
IAG-20	44.00 (41.53)	34.67 (36.00)	30.67 (33.57)	36.44
IAG-21	49.33 (44.59)	36.00 (36.83)	22.33 (28.70)	36.00
IAG-22	45.33 (42.27)	38.67 (38.41)	25.33 (29.98)	36.44
IAG-23	46.67 (43.06)	38.67 (38.37)	22.67 (28.40)	36.00
IAG-24	52.00 (46.13)	37.33 (38.56)	28.00 (31.89)	39.11
IAG-25	45.33 (42.27)	38.67 (38.39)	26.67 (30.97)	36.89
IAG-26	45.33 (42.29)	36.00 (38.37)	30.67 (33.49)	36.00
IAG-27	48.00 (43.81)	38.67 (38.37)	29.33 (32.70)	38.67
IAG-28	44.00 (41.53)	36.00 (36.83)	28.00 (31.78)	36.00
IAG-29	46.67 (43.06)	40.00 (39.07)	24.00 (29.27)	36.89
IAG-30	44.00 (41.50)	38.67 (38.37)	26.67 (30.81)	36.44
SE(m)	**2.852**	**2.134**	**1.908**	**37.51**
CD	**N/A**	**N/A**	**N/A**	

*Value in parenthesis are angular transformed.

Per cent leaf infestation at fruit setting stage

The per cent leaf infestation of different genotypes of ash gourd against red pumpkin beetle had shown non- significant differences varied from 21.33 to 32.00 per cent per plant at fruit setting stage. Among all the genotypes, minimum leaf infestation was observed in genotypes IAG- 10 with 21.33 per cent per plant followed by IAG-21 and IAG-23 as 22.67 per cent as respectively. Highest leaf infestation was recorded on genotypes IAG-19 as 41.33 per cent. Mean of per cent leaf infestation in fruiting stage was recorded as 27.20 per cent. The present findings are in accordance with Kursheed *et al.*, (2013) who showed a similar trend with the significantly highest leaf infestation on Khira Paprola followed by KCU-006 and Mohini-5300 at fruiting stage.

Mean per cent leaf infestation of genotypes of ash-gourd

Data of mean per cent leaf infestation of genotypes of ash gourd against red pumpkin

beetle were varies from 31.56 to 40.00 per cent per plant. Among all the genotypes minimum mean leaf infestation were observed in genotypes IAG- 10 with 31.56 per cent followed by IAG- 19, IAG-21, IAG-23, IAG-26 and IAG-28 as 36.00 per cent/plant. Whereas, highest mean leaf infestation was recorded on genotypes IAG-8 as 40.00 per cent. Overall mean per cent leaf infestation in pre-flowering, flowering and fruiting stage was recorded as 37.51 per cent. Finding of the present work are in agreement with Khursheed *et al.,* (2013) who reported a similar trend with the significantly highest leaf infestation on Khira Paprola followed by KCU-006 and Mohini-5300.

References

Deepak, R., Singh, R.K., Ram, H.H. and Singh, D.K. 2004. Evaluation of Cucumber (*Cucumis sativus* L) Genotypes for Field Resistance to Red Pumpkin Beetle (*Aulacophora foveicollis* Lucas). *Indian J. Plant Genetic Resources*, 17(1): 8-9.

Doharey, K.L. 1983. Bionomics of red pumpkin beetle, *Aulacophora foveicollis* (Lucas) on some fruits. *Indian J. Entomol*., 45: 406-413.

Gill, C.K. 2003. Insect pests and cucumber mosaic virus on muskmelon. *Insect Environ*, 9(3): 102-103.

Khursheed, Sheikh, Desh Raj and Nisar, A.G. 2013. Resistance to red pumkimg beetle, Aulacophora foveicollis (Lucas) in cucumber gentotypes. *Indian Journal of Entomo*, 75(1): 90-93.

Tindall, H.D. 1986. Vegetables in the Tropics. Manmillan Education Ltd., Basingstake, Hampshire, UK. pp. 147.

Yamaguchi, M. 1983. World Vegetables. Dept. of Vegetable Crop, Univ. of California. pp.415.