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Screening of *Brassica* germplasm for resistance to mustard aphid, *Lipaphis erysimi* (Kalt.)

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ABSTRACT

Screening of 60 lines of Indian mustard (*Brassica juncea* L.) for their resistance to the mustard aphid, *Lipaphis erysimi* (Kaltenbach) was carried out at Anand on basis of aphid infestation index (A.I.I.). Varieties NRCM 120 (1.22), NRCM 353 (1.22) and Rayad 9602 (1.23) showed lowest aphid index and proved to be highly resistant (HR). Variety Vardan (1.42) also showed lower aphid index and grouped into resistant (R), whereas varieties GM-2 (1.78), HYOLA-401 (1.69), GM-3 (1.83) and GM-1 (1.80) were categorized as susceptible and highly susceptible.

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INTRODUCTION

Oilseed crops occupy an important place in the agricultural economy of India, of which rapeseed and mustard rank at second place after groundnut in terms of area and production (Ali *et al.*, 2010). These crops occupied an area of 6.30 million hectares with production of 7.20 million tonne in 2013-14. It contributes about 23.7 per cent acreage and 26 per cent production of total oilseeds in India. Despites large acreage, the average productivity of oilseeds is very low mainly due to effect of various biotic and abiotic stresses. Among various biotic factors responsible for reducing the yield of mustard, insect pests are the major one.

According to Bakhetia and Sekhon (1989), 38 insect pests are known to be associated with rapeseed-mustard crop in India. On the basis of their economic importance, the insect pests of mustard crop may be grouped into key pest: aphid, *Lipaphis erysimi* (Kaltenbach), major pests: sawfly, *Athalia lugens proxima* (Klug), painted bug, *Bagrada cruciferarum* Kirkaldy and leaf miner, *Chromatomyia horticola* Goureau, minor pests: Bihar hairy caterpillar, *Spilosoma obliqua* Walker, cabbage butterfly, *Pieris brassicae* Linnaeus, flea beetle, *Phyllotreta cruciferae* Goeze and green aphid, *Myzus persicae* Sulzer, new pests: leaf webber, *Crocidolomia binotalis* Zeller, borer, *Hellula undalis* Fabricius and whitefly, *Bemisia tabaci* Gennadius. Among these, mustard aphid *Lipaphis erysimi* (Kaltenbach) (Aphididae: Hemiptera) is the most important insect pest (key pest) of rapeseed-mustard crop in India (Bakhetia, 1991; Arora, 1999; Rai 1976 and Rohilla *et al.*, 1987).

The nymphs and adults of the aphid suck the cell

sap from the inflorescence, terminal twig, siliqua (pod), leaves and branches. On severe infestation, plant gets poor pod formation, leaves get curled, shrivel and plants become completely dried. On the other hand, aphid produces a good amount of honeydew which facilitates the growth of the fungus that makes the leaves dirty black (Awasthi, 2002). The pest causes 35.4 to 73.3 per cent yield loss, 30.09 per cent seed weight loss and 2.75 per cent oil loss as reported by Bakhetia (1983), Singh and Premchand (1995) and Sharma and Kashyap (1998), respectively. Earlier, Bindra (1972) estimated that about Rs. 900 crores per annum could be saved if the losses due to aphid alone are avoided by adopting suitable control measures. As chemicals are posing serious problems to health and environmental safety, there is an urgent need for ecofriendly approaches of pest control as host plant resistance (HPR). Hence, the present study was taken up to identify the sources of aphid resistance in different *Brassica* species which can be utilized in the breeding programmes.

MATERIAL AND METHODS

A present experiment was carried out at department Agronomy farm, B.A. College of Agriculture, Anand Agricultural University, Anand (Gujarat) during *Rabi* season of the year 2014-15. A total of 60 genotypes of *Brassica juncea* were sown in a Randomized Block Design with three replications, in a plot size of 0.45 × 1.80 m. The spacing between the rows and plants were kept at 45 cm and 15 cm, respectively. The experimental area was properly prepared and sowing of mustard crop was done on the 19th November, 2014-15 during the seasons, by adopting all the standard agronomical practices. The criteria used for evaluating the response of different cultivars to aphids (aphid index) were the scoring system based on aphid population as described by Patel *et al.* (1995). Five randomly selected plants from each cultivar in a replication were observed for aphid injury symptoms and were given an appropriate grade (aphid index). To work out the average aphid index was worked out by using the following formula :

$$\text{Average aphid index} = \frac{0\,N + 1\,N + 2\,N + 3\,N + 5\,N}{\text{Total number of plants observed}}$$

where,

0, 1, 2, 3, 4, 5 are the aphid index.

N = Number of plant showing respective aphid index.

After totalling the figures of the three repeats, the mean index was worked out. The observations were recorded at weekly interval starting from appearance of the pest till the harvesting of crop. Further, all the aspects were similarly followed from all the angles during the season.

An attempt was made to categorize various varieties of mustard in various categories of Resistance/ Susceptibility to aphids' *viz.*, highly resistant (HR), resistant (R), moderately resistant (MR), moderately susceptible (MS), susceptible (S) and highly susceptible (HS).

RESULTS AND DISCUSSION

The data on aphid incidence was recorded at 7 days interval after initiation of the pest population. The data on the aphid index observed during the season were presented in Table 1. During the crop period, the aphid indices were ranged from 1.22 to 1.83. Varieties NRCM-120 (1.22) and NRCM-353 (1.22) were having the lowest aphid index followed by RAYAD-9602 (1.23) and VARDAN (1.42). The highest aphid index was recorded in variety GM-3 (1.83) followed by GM-1 (1.80) and GM-2 (1.78).

The data recorded on aphid index (0-5) are presented in Table 1 and 2 revealed that varieties RAYAD-9602 (1.23), NRCM-120 (1.22) and NRCM-353 (1.22) were categorized as highly resistance to aphids as it showed less than 1.35 aphid index. Vardan (1.42) was found to be resistant (1.35 to 1.46 aphid index). The varieties which showed index more than 1.46 but less than 1.57 were categorized as moderately resistant. There were 29 varieties in moderately resistant category. The varieties which showed more than 1.57 but less than 1.68 aphid index were grouped into moderately susceptible varieties (23). The varieties GM-2 (1.78) and HYOLA-401 (1.69) were categorized as susceptible. While, varieties GM-3 (1.83) and GM-1 (1.80) were found to be highly susceptible showing more than 1.79 aphid index.

The genotypes RAYAD 9602, NRC 120, NRCM 353 (*Brassica juncea*) and PUSA SWARNIM (*B. carinata*) were reported as highly resistant to aphid, *Lipaphis erysimi* Kalt. under field conditions whereas, varieties GM 1, GM 2 and GM 3 (*B. juncea*) found to be moderate to highly susceptible to *L. erysimi* (Anonymous, 2015).

Table 1: Activity of aphid, Lipaphis erysimi in different mustard genotypes

Sr. No.	Name of genotypes	Aphid index (0-5) at weekly interval (Periods)								
		1st	2nd	3rd	4th	5th	6th	7th	8th	Pooled
1.	GM-2	0.79 (0.12)	1.04 (0.58)	1.80 (2.74)	1.94 (3.26)	1.97 (3.38)	2.14 (4.08)	2.24 (4.52)	2.28 (4.70)	1.78 (2.65)
2.	Bio-902	0.84 (0.21)	1.16 (0.85)	1.59 (2.03)	1.60 (2.06)	1.70 (2.39)	1.87 (3.00)	1.99 (3.46)	1.97 (3.38)	1.59 (2.02)
3.	GM-3	0.93 (0.36)	1.42 (1.52)	1.74 (2.53)	1.97 (3.38)	1.96 (3.34)	2.12 (3.99)	2.24 (4.52)	2.29 (4.74)	1.83 (2.86)
4.	GM-4	0.71 (0.00)	1.30 (1.19)	1.52 (1.81)	1.78 (2.67)	1.88 (3.03)	1.99 (3.46)	2.14 (4.08)	2.23 (4.47)	1.68 (2.34)
5.	GM-1	1.08 (0.67)	1.37 (1.38)	1.70 (2.39)	1.88 (3.03)	1.96 (3.34)	1.96 (3.34)	2.20 (4.34)	2.21 (4.38)	1.80 (2.73)
6.	HN-004	0.91 (0.33)	1.08 (0.67)	1.58 (2.00)	1.58 (2.00)	1.66 (2.26)	1.71 (2.42)	1.83 (2.85)	1.80 (2.74)	1.52 (1.81)
7.	Vardan	0.75 (0.06)	0.94 (0.38)	1.27 (1.11)	1.51 (1.78)	1.55 (1.90)	1.66 (2.26)	1.80 (2.74)	1.85 (2.92)	1.42 (1.51)
8.	Csr-100	0.93 (0.36)	1.16 (0.85)	1.54 (1.87)	1.55 (1.90)	1.64 (2.19)	1.77 (2.63)	1.90 (3.11)	1.84 (2.89)	1.54 (1.87)
9.	Rayad-9602	0.87 (0.26)	0.83 (0.19)	1.10 (0.71)	1.10 (0.71)	1.16 (0.85)	1.42 (1.52)	1.60 (2.06)	1.76 (2.60)	1.23 (1.02)
10.	PCR-10	0.87 (0.26)	1.13 (0.78)	1.68 (2.32)	1.68 (2.32)	1.72 (2.46)	1.84 (2.89)	1.96 (3.34)	1.97 (3.38)	1.61 (2.08)
11.	DIRA-342	0.93 (0.36)	1.16 (0.85)	1.62 (2.12)	1.62 (2.12)	1.70 (2.39)	1.80 (2.74)	1.92 (3.19)	1.93 (3.22)	1.59 (2.02)
12.	IC-355650	0.84 (0.21)	1.13 (0.78)	1.62 (2.12)	1.64 (2.19)	1.70 (2.39)	1.85 (2.92)	1.97 (3.38)	2.03 (3.62)	1.60 (2.06)
13.	PBR-357	0.91 (0.33)	1.12 (0.75)	1.62 (2.12)	1.62 (2.12)	1.68 (2.32)	1.83 (2.85)	1.96 (3.34)	1.97 (3.38)	1.59 (2.02)
14.	RAVRD-9201	0.79 (0.12)	1.21 (0.96)	1.58 (2.00)	1.72 (2.46)	1.77 (2.63)	2.02 (3.58)	2.14 (4.08)	2.23 (4.47)	1.68 (2.32)
15.	CSP-930	1.08 (0.67)	1.16 (0.85)	1.64 (2.19)	1.64 (2.19)	1.68 (2.32)	1.81 (2.78)	1.96 (3.34)	2.03 (3.62)	1.63 (2.14)
16.	RSK-27	0.84 (0.21)	1.10 (0.71)	1.70 (2.39)	1.70 (2.39)	1.72 (2.46)	1.94 (3.26)	1.97 (3.38)	2.01 (3.54)	1.62 (2.13)
17.	NOJ-90	1.09 (0.69)	1.08 (0.67)	1.66 (2.26)	1.66 (2.26)	1.70 (2.39)	1.85 (2.92)	1.99 (3.46)	2.03 (3.62)	1.63 (2.16)
18.	PM-67	0.98 (0.46)	1.11 (0.73)	1.70 (2.39)	1.70 (2.39)	1.74 (2.53)	1.90 (3.11)	1.99 (3.46)	2.03 (3.62)	1.64 (2.20)
19.	Varuna	0.75 (0.06)	0.98 (0.46)	1.58 (2.00)	1.59 (2.03)	1.66 (2.26)	1.81 (2.78)	1.92 (3.19)	1.93 (3.22)	1.53 (1.83)
20.	Bio 34192	0.95 (0.40)	1.07 (0.64)	1.68 (2.32)	1.68 (2.32)	1.72 (2.46)	1.80 (2.74)	1.94 (3.26)	1.97 (3.38)	1.60 (2.06)
21.	TM-28	0.91 (0.33)	1.10 (0.71)	1.60 (2.06)	1.59 (2.03)	1.64 (2.19)	1.80 (2.74)	1.94 (3.26)	1.93 (3.22)	1.56 (1.94)
22.	Laxmi	0.79 (0.12)	1.08 (0.67)	1.62 (2.12)	1.60 (2.06)	1.66 (2.26)	1.83 (2.85)	1.94 (3.26)	1.91 (3.15)	1.56 (1.92)
23.	Kranti-pb-15	0.87 (0.26)	1.22 (0.99)	1.56 (1.93)	1.56 (1.93)	1.58 (2.00)	1.78 (2.67)	1.90 (3.11)	1.87 (3.00)	1.54 (1.88)
24.	Kranti	0.87 (0.26)	1.07 (0.64)	1.70 (2.39)	1.70 (2.39)	1.74 (2.53)	1.89 (3.07)	2.01 (3.54)	2.12 (3.99)	1.64 (2.18)
25.	RH-0114	0.93 (0.36)	1.16 (0.85)	1.58 (2.00)	1.60 (2.06)	1.66 (2.26)	1.82 (2.81)	1.92 (3.19)	1.93 (3.22)	1.58 (1.98)
26.	JM-1	0.79 (0.12)	1.10 (0.71)	1.62 (2.12)	1.62 (2.12)	1.70 (2.39)	1.75 (2.56)	1.94 (3.26)	1.99 (3.46)	1.56 (1.94)

Contd.... Table 1

Table 1 contd...

27.	RSK-29	0.75 (0.06)	1.07 (0.64)	1.62 (2.12)	1.62 (2.12)	1.66 (2.26)	1.75 (2.56)	1.96 (3.34)	1.97 (3.38)	1.55 (1.91)
28.	RHJ-96-418	0.85 (0.22)	1.05 (0.60)	1.60 (2.06)	1.60 (2.06)	1.64 (2.19)	1.83 (2.85)	1.94 (3.26)	2.03 (3.62)	1.57 (1.95)
29.	IC-241632	0.71 (0.00)	1.10 (0.71)	1.60 (2.06)	1.60 (2.06)	1.70 (2.39)	1.80 (2.74)	1.94 (3.26)	1.91 (3.15)	1.54 (1.88)
30.	HYOLA-401	0.71 (0.00)	1.30 (1.19)	1.60 (2.06)	1.78 (2.67)	1.88 (3.03)	1.99 (3.46)	2.14 (4.08)	2.23 (4.47)	1.69 (2.37)
31.	DIR-325	0.71 (0.00)	1.08 (0.67)	1.53 (1.84)	1.53 (1.84)	1.61 (2.09)	1.76 (2.60)	1.92 (3.19)	1.91 (3.15)	1.51 (1.77)
32.	SKM-214	0.75 (0.06)	1.21 (0.96)	1.68 (2.32)	1.67 (2.29)	1.68 (2.33)	1.87 (3.00)	1.96 (3.34)	2.10 (3.91)	1.62 (2.11)
33.	HUM-9801	0.87 (0.26)	1.07 (0.64)	1.66 (2.26)	1.66 (2.26)	1.65 (2.22)	1.89 (3.07)	1.99 (3.46)	2.01 (3.54)	1.60 (2.06)
34.	IC-399797	1.01 (0.52)	1.04 (0.58)	1.64 (2.19)	1.64 (2.19)	1.68 (2.32)	1.85 (2.92)	1.96 (3.34)	2.08 (3.83)	1.61 (2.10)
35.	HNT-33	0.79 (0.12)	1.10 (0.71)	1.60 (2.06)	1.60 (2.06)	1.66 (2.26)	1.79 (2.70)	1.91 (3.15)	1.91 (3.15)	1.55 (1.89)
36.	IC-342773	0.87 (0.26)	1.07 (0.64)	1.62 (2.12)	1.63 (2.16)	1.74 (2.53)	1.78 (2.67)	1.92 (3.19)	1.93 (3.22)	1.57 (1.96)
37.	Bio-q-44-279	0.82 (0.17)	1.12 (0.75)	1.55 (1.90)	1.55 (1.90)	1.68 (2.32)	1.72 (2.46)	1.89 (3.07)	1.87 (3.00)	1.53 (1.83)
38.	JSI-45	0.79 (0.12)	1.10 (0.71)	1.59 (2.03)	1.59 (2.03)	1.66 (2.26)	1.70 (2.39)	1.87 (3.00)	1.80 (2.74)	1.51 (1.79)
39.	SKM-124	0.75 (0.06)	1.16 (0.85)	1.70 (2.39)	1.70 (2.39)	1.76 (2.60)	1.89 (3.07)	2.01 (3.54)	2.03 (3.62)	1.62 (2.14)
40.	NRCM-120	0.82 (0.17)	1.79 (2.70)	1.01 (0.52)	1.26 (1.09)	1.41 (1.49)	1.42 (1.52)	1.56 (1.93)	1.50 (1.75)	1.22 (0.99)
41.	Lalpura-7	0.93 (0.36)	1.05 (0.60)	1.62 (2.12)	1.62 (2.12)	1.68 (2.32)	1.81 (2.78)	1.97 (3.38)	2.03 (3.62)	1.59 (2.03)
42.	SKM-0123	0.91 (0.33)	1.10 (0.71)	1.68 (2.32)	1.67 (2.29)	1.72 (2.46)	1.83 (2.85)	1.97 (3.38)	2.03 (3.62)	1.61 (2.10)
43.	Khadi-1	0.71 (0.00)	1.04 (0.58)	1.56 (1.93)	1.56 (1.93)	1.60 (2.06)	1.81 (2.78)	1.92 (3.19)	1.93 (3.22)	1.52 (1.80)
44.	SBF-2	0.71 (0.00)	1.13 (0.78)	1.57 (1.96)	1.57 (1.96)	1.70 (2.39)	1.75 (2.56)	1.92 (3.19)	1.87 (3.00)	1.53 (1.83)
45.	ZEM-1	0.71 (0.00)	1.07 (0.64)	1.63 (2.16)	1.64 (2.19)	1.70 (2.39)	1.76 (2.60)	1.87 (3.00)	1.87 (3.00)	1.53 (1.84)
46.	IC-494146	0.87 (0.26)	1.01 (0.52)	1.67 (2.29)	1.67 (2.29)	1.72 (2.46)	1.85 (2.92)	1.94 (3.26)	2.03 (3.62)	1.60 (2.05)
47.	ORM-39	0.71 (0.00)	1.07 (0.64)	1.70 (2.39)	1.70 (2.39)	1.78 (2.67)	1.85 (2.92)	1.99 (3.46)	2.03 (3.62)	1.60 (2.07)
48.	JMG-8	0.75 (0.06)	1.16 (0.85)	1.55 (1.90)	1.55 (1.90)	1.64 (2.19)	1.70 (2.39)	1.90 (3.11)	1.89 (3.07)	1.52 (1.80)
49.	B-1281	0.75 (0.06)	1.07 (0.64)	1.60 (2.06)	1.60 (2.06)	1.66 (2.26)	1.76 (2.60)	1.91 (3.15)	1.95 (3.30)	1.54 (1.80)
50.	RH-593	0.82 (0.17)	1.06 (0.62)	1.55 (1.90)	1.56 (1.93)	1.68 (2.32)	1.78 (2.67)	1.99 (3.46)	1.97 (3.38)	1.55 (1.90)
51.	RS-9304	0.79 (0.12)	1.01 (0.52)	1.55 (1.90)	1.56 (1.93)	1.61 (2.09)	1.90 (3.11)	2.01 (3.54)	2.12 (3.99)	1.57 (1.96)
52.	DIR-747	0.79 (0.12)	1.16 (0.85)	1.53 (1.84)	1.53 (1.84)	1.57 (1.96)	1.81 (2.78)	1.92 (3.19)	1.97 (3.38)	1.52 (1.82)
53.	NRCM-353	0.71 (0.00)	0.71 (0.00)	1.07 (0.64)	1.30 (1.19)	1.37 (1.38)	1.40 (1.46)	1.60 (2.06)	1.98 (3.42)	1.22 (0.98)

Contd.... Table 1

Table 1 contd...

54.	UP-1-88	0.71 (0.00)	1.05 (0.60)	1.58 (2.00)	1.57 (1.96)	1.38 (1.40)	1.76 (2.60)	1.92 (3.19)	1.93 (3.22)	1.53 (1.83)
55.	SKM-9033	0.71 (0.00)	1.13 (0.78)	1.66 (2.26)	1.66 (2.26)	1.72 (2.46)	1.80 (2.74)	1.97 (3.38)	1.97 (3.38)	1.58 (1.99)
56.	IC-331819	0.87 (0.26)	1.05 (0.60)	1.62 (2.12)	1.62 (2.12)	1.70 (2.39)	1.85 (2.92)	1.96 (3.34)	1.93 (3.22)	1.57 (1.98)
57.	KHERALU-1	0.98 (0.46)	1.15 (0.82)	1.59 (2.03)	1.59 (2.03)	1.70 (2.39)	1.76 (2.60)	1.90 (3.11)	1.81 (2.78)	1.56 (1.93)
58.	IC-560699	0.79 (0.12)	1.07 (0.64)	1.60 (2.06)	1.60 (2.06)	1.72 (2.46)	1.72 (2.46)	1.87 (3.00)	1.87 (3.00)	1.53 (1.84)
59.	SW-1-9017	0.75 (0.06)	1.00 (0.50)	1.62 (2.12)	1.66 (2.26)	1.74 (2.53)	1.89 (3.07)	1.97 (3.38)	1.95 (3.30)	1.57 (1.97)
60.	AA 58	0.79 (0.12)	1.03 (0.56)	1.58 (2.00)	1.62 (2.12)	1.70 (2.39)	1.85 (2.92)	2.02 (3.58)	1.72 (2.46)	1.54 (1.87)
S.E. ± Treatment (T)		0.07	0.08	0.08	0.09	0.07	0.07	0.04	0.08	0.026
Period (P)		-	-	-	-	-	-	-	-	0.009
T x P		-	-	-	-	-	-	-	-	0.073
C.D. (P=0.05)	T	0.19	0.23	0.23	0.24	0.21	0.19	0.10	0.21	0.07
P		-	-	-	-	-	-	-	-	0.027
T x P		-	-	-	-	-	-	-	-	NS
C. V. %		13.72	13.03	9.02	9.21	7.64	8.44	9.30	8.68	9.88

Note: Figures in parenthesis are retransformed values; those outside are $\sqrt{x + 0.5}$ value.

Table 2: Categorization of different varieties/ genotypes of mustard for their susceptibility to *L. erysimi* based on population

Category of resistance	Scale	Varieties/ genotypes
Population of aphid	$\overline{X}$ = 1.57	SD = 0.11
Highly resistant	$\overline{X_i}$ < 1.35	RAYAD-9602 (1.23), NRCM-120 (1.22), NRCM-353 (1.22)
Resistant	$\overline{X_i}$ > 1.35 < 1.46	VARDAN (1.42)
Moderately resistant	$\overline{X_i}$ > 1.46 < 1.57	HN_004 (1.52), CSR-100 (1.54), VARUNA (1.53), TM-28 (1.56), LAXMI (1.56), KRANTI-PB-15 (1.54), JM-1 (1.56), RSK-29 (1.55), PHJ-96-418 (1.57), IC 241632 (1.54), DIR-325 (1.51), BIO-Q-44-279 (1.53), JSI-45 (1.51), DIR-747 (1.52), KHADI-1 (1.52), SBF-2 (1.53), JMG-8 (1.52), B-1281 (1.54), RS-9304 (1.57), RH-593 (1.55), UP-1-88 (1.53), ZEM-1 (1.53), IC 331819 (1.57), KHERALU-1 (1.56), IC 560699 (1.53), SW-1-9017 (1.57), AA-58 (1.54), HNT-33 (1.55), IC 342773 (1.57)
Moderately susceptible	$\overline{X_i}$ > 1.57 < 1.68	BIO-902 (1.59), RH-0114 (1.58), DIRA-342 (1.59), GM-4 (1.68), PCR-10 (1.61), IC 355650 (1.60), PBR-357 (1.59), RAVRD-9201 (1.68), CSP-930 (1.63), RSK-27 (1.62), NOJ-90 (1.63), PM-67 (1.64), Bio-34192 (1.60), KRANTI (1.64), SKM-214 (1.62), HUM-9801 (1.60), IC 399797 (1.61), SKM-0124 (1.62), LALPURA-7 (1.59), SKM-0123 (1.61), IC 494146 (1.60), ORM-39 (1.60), SKM-9033 (1.58)
Susceptible	$\overline{X_i}$ > 1.68 < 1.79	GM-2 (1.78), HYOLA-401 (1.69)
Highly susceptible	$\overline{X_i}$ > 1.79	GM-3 (1.83), GM-1 (1.80)

Jat *et al*. (2007) recorded minimum aphid, *L. erysimi* population (16/10 cm twig) on mustard variety Varuna (T-59), while it was maximum on RZM (56), JM-1 (48.28), GM-2 (48.27), RH-30 (24.92), PCR-7 (22.06) and BIO-902 (17.67). Ghadage (2013) reported that the genotypes GM-1 and GM-3 were found to be susceptible with 4.51 and 4.48 aphid index /plant, respectively. Thus, present findings are in close agreement with the results of earlier workers.

In nutshell, based on population of aphids sixty varieties/genotypes of mustard were screened under field conditions for their susceptibility against aphid, *L. erysimi.*

The results showed that none of the varieties/genotypes of mustard was found free from the aphid attack. The incidence of *L. erysimi* differed significantly among various varieties/genotypes. Varieties NRCM 120 (1.22), NRCM 353 (1.22) and Rayad 9602 (1.23) showed lowest aphid index and proved to be highly resistant (HR). Whereas, Vardan (1.42) was found resistant. Variety HYOLA-401 (1.69), GM-2 (1.78), GM-3 (1.83) and GM-1 (1.80) were found to be susceptible and highly susceptible, respectively.

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