Bangladesh J. Bot. **50**(3): 565-575, 2021 (September) DOI: https://doi.org/10.3329/bjb.v50i3.55836

IDENTIFICATION OF SOURCES OF RESISTANCE IN SESAME AGAINST LEAF WEBBER AND CAPSULE BORER (*ANTIGASTRA CATALAUNALIS* DUP.)

AK Panday*, MM Sundaria[1], M Chandrasekaran[2] and Rajani Bisen

All India Coordinated Research Project on Sesame and Niger, Jawaharlal Nehru Agricultural University Campus, Jabalpur-482 004 (MP), India

Keywords: Sources of resistance, Leaf webber, Capsule borer, Sesame

Abstract

The 197 entries including two checks (SI-250 Resistance check and TC-25 Susceptible check) of sesame (*Sesamum indicum* L.) representing varied geographic and genetic diversity were tested at three diverse climatic locations of India *viz*., Jabalpur, Mandor and Vriddhachalam, against leaf webber and capsule. None of the screened entry was found to be free from infestation by leaf webber and capsule borer. The average plant, flower and capsule damage over the locations varied from 6.58 to 27.17, 7.80 to 23.71 and 3.33 to 15.43%, respectively. At vegetative stage, the entries SI-0018-B (6.33%) and IS-353-A (6.58%) at flowering, the entry KMR-7 (7.80%) and at capsule stage, the entries SI-0018-B (3.33%), MT-67-25 (3.65%) and RJS-56-A (3.80%) were recorded the lowest damage. Further, the response of promising entries under artificial pest load conditions over the locations showed that the entry SI-271-B was superior to others with respect to lowest plant and flower damage while at capsule stage, the entry NIC-8510-B was superior. Under artificial pest load condition, the entries SI-271-B, NIC-9839 and MT-67-25 showed the lowest damage whereas under natural condition, the entries IS-178-C and SP-3267 were superior to others with respect to lowest damage. The feeding preference studies showed that the entries SI-271-B, IS-178-C, MT-67-25 and S-OO-17-B were least preferred by the leaf webber and capsule borer and recorded the lowest leaf area damage.

Introduction

Sesame indicum L. origins in east Africa and India is one of the world's oldest oil seed crop grown mainly for its seeds that contain approximately 52 to 57% oil and 25% protein. Although it is grown in more than 55 countries, Asia contributes for more than 68 per cent area and 67 per cent production in the world. In the recent past, international demand and market for sesame has witnessed substantial growth. India ranks first in area (18.7 Lakhs) under sesame and earns Rs. 3000 crores through sesame export. Sesame is an excellent edible oil, food, biomedicine and health care, and all in one. The exceptional nutritional, medicinal, cosmetic and cooking qualities of sesame oil made it queen of oils. The seeds are rich in quality proteins and essential amino acids, especially methionine and tryptophan, which are essential for health. Sesame seed is a rich source of linoleic acid, vitamins, niacin and minerals including calcium and phosphorus. Sesame oil contains 85 per cent unsaturated fatty acids and is highly stable and has reducing effect on cholesterol and prevents coronary heart diseases. It is grown in all seasons of the year and being a short duration crop, fits well in to various cropping systems. In addition to India, substantial quantities of sesame are produced in Sudan, Myanmar and China. Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh, West Bengal, Tamil Nadu, Maharashtra, and Andhra Pradesh are the major sesame producing states in India. However, productivity of sesame is low and fluctuating in India. Insect pests are one of the most important factors affecting the production of

*Author for correspondence: <pandeyjnkvv@gmail.com>, <pandey_bhu@rediffmail.com>. [1]Agriculture Research Station, Mandor, Jodhpur-342304, India. [2]ICAR-AICRP Centre for sesame, Tamil Nadu Agricultural University, Vriddhachalam-606 001, Tamil Nadu, India.

sesame both in quality and quantity (Egonyu *et al*. 2005, Ahirwar *et al.* 2010). The pest attack tolls a heavy loss (25 to 90%) in seed yield (Ahuja and Kalyan 2002). Though, sesame is attacked by a number of insect pests and mites, leaf webber and capsule borer (*Antigastra catalaunalis*) is the potential constraint to production from seedling stage to maturity (Choudhary *et al.* 1987, Selvanarayanan and Baskaran 1996). In a country like India, the production of sesame is already much below the expectation and therefore the damage due to *Antigastra* is undesirable. It is therefore, extremely important to devise means to reduce the extent of damage without adversely affecting the agro-ecosystem. Among the ecofriendly management measures, the use of resistant/tolerant varieties is one of the effective alternative which have no adverse effect on the ecosystem. So, resistant/tolerant variety is a right choice. Hence 197 entries of sesame against leaf webber and capsule borer were evaluated under natural and artificial pest load condition during *Kharif* season of the year 2011 and 2012.

Materials and Methods

Identification of sources of resistance in sesame against leaf webber and capsule borer was conducted at three diverse agro-climatic zones of India, JNKVV, Jabalpur (Madhya Pradesh), ARS, Mandor (Rajasthan) and RRS, Vriddhachalam (Tamil Nadu) during *Kharif* season of the year 2011 and 2012. One hundred ninety seven genotypes including resistant (SI-250) and susceptible check (TC-25) were taken as treatment to know their relative resistance/susceptibility against *A. catalaunalis*. The experiment was laid out in a rod-row design with single row of 5 m length, row to row and plant to plant spacing of 30 cm and 10 cm, respectively. Recommended doses of fertilizers (40N+30P+20K kg/ha) and other agronomic practices (except insecticides) were applied. Five plants of each genotype were selected randomly and tagged. Observations were recorded at vegetative, flowering and capsule stages by counting the number of damaged and total number of plant, flower and capsule per plant. The resistance/susceptibility for individual lines was judged on the basis of overall damage at all three stages of plant growth. Of which, ten promising entries were selected and screened under artificial pest load condition. Further for the confermation of resistance, the feeding preference studies of all the selected genotypes were also conducted.

$$\text{Per cent leaf/flower/capsule damage} = \frac{\text{No. of infested leaf/flower/ capsule}}{\text{Total no. of leaf/flower/ capsule}} \times 100$$

Susceptibility rating scale on the basis of overall damage at different stages (Vegetative, flowering and capsule stage) of plant growth

A. On the basis of plant and flower infestation

I.	Infestation < 10 per cent.	-	Resistant
II.	10-20 per cent	-	Moderately Resistant
III.	21-30 per cent	-	Moderately susceptible
IV.	31-50 per cent	-	Susceptible
V.	above 50 per cent	-	Highly susceptible

B On the basis of capsule damage

I.	Infestation < 5 per cent	-	Resistant
II.	5-10 per cent	-	Moderately Resistant
III.	11-15 per cent	-	Moderately susceptible
IV.	16-25 per cent	-	Susceptible
V.	above 25 per cent	-	Highly susceptible

Results and Discussion

Results showed that none of the entry was free from the attack by the *A. catalaunalis*. However, significant differences were observed in the degree of infestation among the entries. At vegetative stage, the damage varied from 6.58 to 27.17%, being lowest in the entry SI-0018-B and highest in the susceptible check (TC-25) followed by 26.38% in the entry EC-303454-A (Table 1). Flower damage was found to vary from 7.80 to 23.71 per cent while capsule damage was 3.33 to 15.43%. At vegetative stage, the lowest damage was recorded in the entries SI-0018-B (6.33%) and IS-353-A (6.58%) while at flowering the entries KMR-7 (7.80), SI-1687 (8.38%) and RJS-17 (8.76%) were found to be superior to others (Table 1). At capsule stage, the lowest damage was recorded in the entries SI-0018-B (3.33%), MT-67-25 (3.65) and RJS-56-A (3.80%) (Table 1). Earlier Murli Bhaskaran and Thangavelu (1990) also reported resistance in terms of capsule damage in different germplasm lines of sesame which are more or less similar to present findings. On the basis of total damage at all the three stages of plant growth the screened genotypes which were grouped into different categories, showed that none of the them were resistant and moderately resistant. One hundred seventy four genotypes were categorized as susceptible with the range of 31 to 50% damage. Three genotypes SI-1146, EC-303454-A and TC-25 were categorized as highly susceptible (> 50%) (Table 3). The present findings are in conformity with the results of Baskaran *et al.* (1994), Ahuja and Kalyan (2001), Manisegaran *et al.* (2001) and Singh (2002). They reported that the genotypes KMR-14 and TKG-22 were moderately resistant against *A. catalaunalis*.

Table 1. Response of genotypes of sesame against leaf webber/capsule borer at different locations of India (average of three locations and of two years data).

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
1	GSM-22	10.98	13.03	4.75	28.76	MS
2	EC-310421	13.75	10.73	6.98	31.46	S
3	IC-14093	16.85	11.53	6.72	35.10	S
4	SI-2116	16.05	13.36	6.92	36.33	S
5	GRT-83135	21.40	12.66	6.58	40.65	S
6	MT-67-25	11.12	10.63	3.65	25.40	MS
7	NIC-16328	13.90	14.58	5.48	33.97	S
8	NIC-8526	15.77	12.45	7.47	35.69	S
9	NIC-16275	14.35	11.61	5.93	31.90	S
10	SI-2973	15.48	13.21	6.73	35.43	S
11	NIC-8984	14.02	14.65	6.43	35.10	S
12	IS-52359-A	12.10	16.95	6.12	35.17	S
13	S-0429-A	12.45	16.65	6.12	35.22	S
14	GRT-00115-A	21.26	15.20	7.33	43.79	S
15	SI-1665	9.86	15.06	5.67	30.60	S
16	OLT-61-A	15.81	16.65	7.15	39.61	S
17	IS-353-A	6.58	15.45	5.90	27.93	MS
18	IS-413-A	15.05	14.18	6.60	35.83	S
19	NIC-17335-A	12.47	18.46	6.13	37.07	S
20	IS-280-A	9.28	13.61	5.58	28.48	MS

Contd.

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
21	IS-296-A	15.20	17.00	6.53	38.73	S
22	IS-607-A	13.32	13.01	6.01	32.34	S
23	SI-3178-I	18.12	16.66	6.63	41.42	S
24	RJS-56-A	20.30	13.65	3.80	37.75	S
25	NIC-16095-A	12.90	15.98	4.80	33.68	S
26	DSK-I-A	17.18	16.88	5.17	39.23	S
27	IS-58-2-A	20.53	10.40	7.25	38.18	S
28	SI-318	17.52	17.80	5.20	40.52	S
29	NIC-16401-A	13.07	16.16	3.68	32.92	S
30	S-0062-A	12.88	13.73	5.40	32.02	S
31	SI-1060	22.30	10.23	7.03	39.56	S
32	OLT-44	18.33	16.85	8.17	43.35	S
33	IS-481	20.17	16.75	4.05	40.97	S
34	IS-425-C	17.82	15.90	6.33	40.05	S
35	IS-52	19.18	9.50	8.70	37.38	S
36	IS-552	18.70	11.75	9.63	40.08	S
37	SI-2670	15.92	16.08	6.38	38.38	S
38	SP-1162-B	13.03	14.43	7.65	35.12	S
39	IS-178-C	7.90	10.00	3.90	21.80	MS
40	IS-56-1	17.53	14.35	6.43	38.32	S
41	RJS-17	12.73	8.76	5.38	26.87	MS
42	IS-8480-B	18.88	12.26	6.50	37.64	S
43	IC-14160-I	11.88	15.66	7.72	35.27	S
44	ES-110-C	18.60	17.00	5.48	41.08	S
45	IS-607-1-84	23.80	9.86	9.70	43.37	S
46	NIC-16236	17.93	12.06	9.10	39.09	S
47	IS-722	19.38	15.63	6.30	41.32	S
48	ES-165-B	16.97	16.20	6.93	40.10	S
49	SI-255-I	14.68	15.21	5.97	35.87	S
50	IS-104	9.43	13.28	4.78	27.50	MS
51	RJS-738-1-84	8.75	14.96	6.97	30.68	S
52	IS 319-1	13.08	12.53	6.62	32.23	S
53	SI-3100	19.05	11.90	6.20	37.15	S
54	IS-1848	10.25	13.85	5.80	29.90	MS
55	SI-1667-2	12.28	12.36	7.55	32.20	S
56	IS-17-1	13.15	12.65	5.93	31.73	S
57	ES-234-1-84	22.18	15.15	11.00	48.33	S
58	NIC-8252	14.43	15.26	8.90	38.60	S
59	ES-35-B	18.95	18.55	6.42	43.92	S
60	SI-789	10.13	16.01	6.65	32.80	S

Contd.

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
61	S-0025	17.68	13.70	6.53	37.92	S
62	IS-250	17.32	15.30	7.72	40.33	S
63	NIC-8510-B	13.90	10.35	4.78	29.03	MS
64	ES 72-C-B	16.75	8.88	5.48	31.11	S
65	IS-722-I	11.75	15.18	13.22	40.15	S
66	IS-3051	12.53	17.50	13.40	43.43	S
67	IS-191	13.57	14.63	15.07	43.27	S
68	S-0374-A	17.63	18.01	10.83	46.48	S
69	KMR-54	18.70	12.98	9.83	41.51	S
70	NIC-8562	12.13	10.91	5.85	28.89	MS
71	SI-102	16.83	13.05	8.27	38.15	S
72	NIC-8062	13.75	9.95	6.00	29.70	MS
73	SI-1881-A	12.83	13.26	8.03	34.12	S
74	SI -7818-B	10.80	15.26	6.35	32.42	S
75	IS-615	15.70	17.08	7.45	40.23	S
76	KMR-71	16.98	10.70	3.68	31.37	S
77	ES 127-B	21.55	18.75	8.73	49.03	S
78	NIC-16237	13.97	12.25	5.48	31.70	S
79	SI-2182 -B	22.58	9.65	9.88	42.10	S
80	ES-3196	12.60	14.48	7.10	34.18	S
81	SI-75	12.30	12.76	5.58	30.65	S
82	IS-65	19.45	15.20	5.95	40.60	S
83	IS-74	19.45	19.33	5.55	44.33	S
84	NIC-10645	12.62	15.75	7.15	35.52	S
85	SP-3267	7.50	11.01	6.02	24.53	MS
86	RME-111	22.02	15.83	6.55	44.40	S
87	SI-953-B	15.38	18.23	6.58	40.20	S
88	SI-0018-B	6.33	11.93	3.33	21.60	MS
89	IC-204962	18.60	12.36	9.33	40.29	S
90	IS-715-1-84-B	18.73	12.73	9.90	41.36	S
91	EC-303417-B	15.78	11.43	9.18	36.38	S
92	IS-152	14.42	15.38	11.83	41.63	S
93	IS-1804-A	19.35	20.13	8.20	47.68	S
94	NIC-16124-A	14.50	14.01	8.87	37.38	S
95	SI-1074-1	17.28	16.93	5.90	40.12	S
96	EC-303454-A	26.38	18.36	6.92	51.67	HS
97	NIC-16114-A	17.17	17.46	7.38	42.02	S
98	IC-204139	15.40	15.43	6.42	37.25	S
99	SI-1188-I	16.07	14.20	5.35	35.62	S
100	IC-43177-A	20.62	18.56	7.28	46.47	S

Contd.

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
101	SI-3279-1	20.43	12.06	9.20	41.69	S
102	SI-0185	19.85	16.15	4.98	40.98	S
103	IC-205649	18.32	18.53	4.08	40.93	S
104	NIC-9627	18.92	18.16	7.18	44.27	S
105	TC-14146-C	18.95	19.91	6.17	45.03	S
106	IC-1025-A	15.02	20.30	7.47	42.78	S
107	NIC-16227-A	17.48	16.93	7.37	41.78	S
108	NIC-8224-A	18.10	11.90	8.03	38.03	S
109	SI-3315-6-I	14.63	16.30	8.73	39.67	S
110	GRT-8330-B	14.30	16.33	6.87	37.50	S
111	EC-303441-B	15.68	16.73	8.25	40.67	S
112	NIC-16278-A	13.03	16.21	6.43	35.68	S
113	S-0403-A	17.25	16.05	6.68	39.98	S
114	NIC-8423-B	12.95	14.41	6.32	33.68	S
115	S-484	12.38	17.31	6.58	36.28	S
116	KMR-74	12.20	16.05	5.85	34.10	S
117	IC-204550	15.17	16.30	7.53	39.00	S
118	GRT-839-A	15.63	16.91	9.27	41.82	S
119	KMR-89	16.38	15.70	6.72	38.80	S
120	NIC-7907	16.14	18.03	8.80	42.98	S
121	NIC-8392	12.87	15.30	4.87	33.03	S
122	KMS-342	13.17	12.60	4.90	30.67	S
123	KMS-349	18.28	15.48	5.90	39.67	S
124	NIC-8489	14.60	8.88	7.33	30.81	S
125	KMR-28	19.15	11.28	5.83	36.26	S
126	SI-271-B	11.30	9.38	4.90	25.58	MS
127	NIC-9839	15.23	15.08	4.52	34.83	S
128	IS-470-A	19.20	12.38	7.98	39.56	S
129	NIC-9627-I	9.20	11.78	5.55	26.53	MS
130	SI-1451	14.58	14.45	5.18	34.22	S
131	G-43	18.98	16.81	6.97	42.77	S
132	BS-61	22.85	17.25	10.13	50.23	HS
133	G-37	10.53	19.63	5.78	35.95	S
134	RJS-77	18.78	11.56	11.38	41.72	S
135	ES-75	18.78	11.21	8.45	38.44	S
136	G-3	11.05	11.86	10.28	33.19	S
137	NIC-8463	11.70	17.78	15.43	44.92	S
138	NIC-3181	16.40	15.81	6.10	38.32	S
139	G-45	16.57	11.25	11.35	39.17	S
140	EC-3340998	23.43	12.46	11.23	47.12	S

Contd.

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
141	EC-334999	19.15	12.16	10.08	41.39	S
142	NIC-7905	17.08	10.10	7.23	34.40	S
143	EC-334985-1	21.25	10.58	8.53	40.36	S
144	SI-1225	18.43	8.91	7.25	34.59	S
145	IS-728	17.98	9.55	8.80	36.33	S
146	EC-335010	20.43	11.95	10.18	42.55	S
147	NIC-9839	14.98	9.26	4.78	29.02	MS
148	BS-490	20.50	13.15	8.08	41.73	S
149	IC-14178	16.35	10.96	5.95	33.27	S
150	IC-132415	18.48	11.50	8.73	38.70	S
151	ES-43	15.53	13.56	10.52	39.62	S
152	IC-132415	18.88	17.75	8.57	45.20	S
153	S-0502	17.73	17.83	9.32	44.88	S
154	MS-4-275	18.62	17.16	8.13	43.92	S
155	NIC-8535	13.83	12.78	5.12	31.73	S
156	SI-253	22.78	12.48	7.80	43.06	S
157	SI-2192	19.25	13.06	11.03	43.34	S
158	IS-393-1	17.45	16.53	6.75	40.73	S
159	IS-446-1-64	9.67	11.65	4.13	25.45	MS
160	IC-199443	16.68	14.26	6.12	37.07	S
161	EC-334966	11.68	14.35	7.95	33.98	S
162	KMR-1	20.37	11.70	7.47	39.53	S
163	IS-366	9.00	10.76	6.30	26.07	MS
164	SI-995	8.68	14.26	8.77	31.72	S
165	EC-303440	12.37	13.33	4.73	30.43	MS
166	IS-723	13.80	11.30	7.80	32.90	S
167	S-0140	13.92	10.25	5.33	29.50	MS
168	SI-2138-2	14.92	13.90	6.80	35.62	S
169	G-25	18.18	11.90	9.60	39.68	S
170	G-14	13.28	13.93	8.80	36.01	S
171	IS-451	11.75	17.76	4.42	33.93	S
172	S-0598	18.53	14.16	6.88	39.58	S
173	SI-1687	17.08	8.38	7.00	32.46	S
174	EC-178-2	22.20	12.31	9.08	43.59	S
175	EC-334950-1	21.73	11.36	7.07	40.16	S
176	SI-2174-1	20.98	11.01	7.95	39.95	S
177	EC-334992	15.05	11.58	9.60	36.23	S
178	SI-7192	22.90	9.35	7.25	39.50	S
179	ES-1501	21.68	12.61	12.98	47.27	S
180	SI-1146	26.15	12.15	12.35	50.65	HS

Contd.

Sl. No.	Entry	Plant damage (%)	Flower damage (%)	Capsule damage (%)	Total damage (%)	Reaction
181	SI-29973	18.83	13.25	8.03	40.10	S
182	SI-3263	23.00	11.33	9.58	43.91	S
183	KMR-19	23.05	13.86	9.78	46.69	S
184	IS-56-A	21.95	13.85	11.58	47.38	S
185	KMR-7	18.25	7.80	5.78	31.83	S
186	NIC-16278-A	19.10	12.65	10.50	42.25	S
187	IS-129	16.83	13.41	10.90	41.14	S
188	G-47	20.18	13.66	9.00	42.84	S
189	SI-3315-16	16.25	12.13	8.30	36.68	S
190	ES-120-1-84-B	19.95	14.35	6.13	40.43	S
191	S-99-A	20.13	14.26	11.35	45.74	S
192	IS-449	17.83	11.68	10.30	39.81	S
193	IS-156-3-84	19.67	15.68	10.83	46.18	S
194	IC-30884	13.95	15.36	7.33	36.65	S
195	IS-564	23.18	16.08	8.48	47.75	S
196	SI-250 (RC)	15.37	10.55	6.57	32.48	S
197	TC-25	27.17	23.71	14.95	65.83	HS

HS = Highly Susceptible, MS = Moderately Susceptible, S = Susceptible

Table 2. Screening of promising genotypes against *Antigastra* under artificial pest load condition in net house at Jabalpur, Mandor and Vriddhachalam.

Sl. No.	Entry	Per cent plant infestation	Per cent flower damage	Per cent capsule damage	Total damage	Reaction
1.	MT-67-25	7.41	12.07	9.44	28.92	MS
2.	IS-178-C	18.57	12.94	8.15	39.66	S
3.	RJS-17	34.48	12.87	10.63	57.98	HS
4.	NIC-8510-B	19.63	10.21	3.63	33.47	S
5.	S-0018-B	19.16	14.28	8.63	42.07	S
6.	SI-271-B	7.02	9.08	7.32	23.42	MS
7.	SI-1451	21.05	11.94	12.95	45.94	S
8.	NIC-9839	8.25	11.74	6.94	26.93	MS
9.	SI-253	24.48	16.45	13.13	54.06	HS
10.	OSC 366	27.43	12.88	16.36	56.67	HS
11.	TC-25	39.57	23.10	15.64	78.31	HS
12.	SI-250	20.72	12.62	6.98	40.31	S

Among the screened entries, 10 promising entries, on the basis of their performance at different stages of plant growth (vegetative, flowering and capsule stages) were selected and further screened under artificial pest load conditions (Table 2). The screened entries were further categorized in to different categories on the basis of their performance at different stages of plant growth. The results showed that at vegetative stage, three entries, SI-271-B, MT-67-25 and NIC-9839 were less than 10% plant damage and categorized as resistance whereas at flowering, the entry SI-271-B registered 9.08% damage and at capsule stage the entry NIC-8510-B showed

Table 3. Categorization of genotypes on the basis of their reaction against *Antigastra.*

Sl. No	Plant damage (%)	Reactions	No. of genotypes	Genotypes
1.	No Damage	Immune	-	-
2.	<10	Resistant	-	-
3.	10-20	Moderately resistant	-	-
4.	21-30	Moderately susceptible	20	SI-0018-B, IS-178-C, SP-3267,MT-67-25, IS-446-1-64,SI-271-B, IS-366, NIC-9627-I,RJS-17,IS-104,IS-353-A,IS-280-A, GSM-22, NIC-8562, NIC-9839, NIC-8510-B, S-0140,NIC-8062,IS-1848, EC-303440
5.	31-50	Susceptible	174	SI-1665, SI-75, KMS-342, RJS-738-1-84, NIC-8489, ES-72-C-B, KMR-71, EC-310421, NIC-16237, SI-995, IS-17-1, NIC-8535, KMR-7, NIC-16275, S-0062-A, SI-1667-2, IS 319-1, IS-607-A, SI -7818-B, SI-1687, SI-250, SI-789, IS-723, NIC-16401-A, NIC-8392, G-3, IC-14178, NIC-16095-A, NIC-423-B, IS-451, NIC-16328, EC-334966, KMR-74, SI-1881-A, ES-3196, SI-1451, NIC-7905, SI-1225, NIC-9839, NIC-8984, IC-14093, SP-1162-B, IS-52359-A, S-0429-A, IC-14160-I, SI-2973, NIC-10645, SI-1188-I, SI-2138-2, NIC-16278-A, NIC-8526, IS-413-A, SI-255-I, G-37, G-14, EC-334992, KMR-28, S-484, IS-728, SI-2116, EC-303417-B, IC-30884, SI-3315-16, IC-199443, NIC-17335-A, SI-3100, IC-204139, IS-52, NIC-16124-A, GRT-8330-B, IS-8480-B, RJS-56-A, S-0025, NIC-8224-A, SI-102, IS-58-2-A, IS-56-1, NIC-3181, SI-2670, ES-75, NIC-8252, IC-132415, IS-296-A, KMR-89, IC-204550, NIC-16236, G-45, DSK-I-A, SI-7192, KMR-1, SI-1060, IS-470-A, S-0598, OLT-61-A, ES-43, KMS-349, SI-3315-6-I, G-25, IS-449, SI-2174-1, S-0403-A, IS-425-C, IS-552, ES-165-B, SI-29973, SI-1074-1, IS-722-I, EC-334950-1, SI-953-B, IS-615, IC-204962, IS-250, EC-334985-1, ES-120-1-84-B, SI-318, IS-65, GRT-83135, EC-303441-B, IS-393-1, IC-205649, IS-481, SI-0185, ES-110-C, IS-129, IS-722, IS-715-1-84-B, EC-334999, SI-3178-I, KMR-54, IS-152, SI-3279-1, RJS-77, BS-490, NIC-16227-A, GRT-839-A, NIC-16114-A, SI-2182 -B, NIC-16278-A, EC-335010, G-43, IC-1025-A, G-47, NIC-7907, SI-253, IS-191 SI-2192, OLT-44, IS-607-1-84, IS-3051,EC-178-2, GRT-00115-A, SI-3263, ES-35-B, MS-4-275, NIC-9627, IS-74, RME-111, S-0502, NIC-8463, TC-14146-C, IC-132415, S-99-A, IS-156-3-84, IC-43177-A, S-0374-A, KMR-19, EC-3340998, ES-1501, IS-56-A, IS-1804-A, IS-564, ES-234-1-84, ES 127-B, BS-61
6.	>50	Highly susceptible	03	SI-1146, EC-303454-A, TC-25

Table 4. Feeding preference studies in promising genotypes of sesame against *Antigastra.*

Sl. No.	Entry	Leaf damage (%)			
		No. third instar larvae released	Mandor	Vriddchalam	Mean
1.	MT-67-25	10	4.08 (11.62)	8.87 (17.32)	6.48
2.	IS-178-C	10	5.12 (13.06)	7.16 (15.52)	6.14
3.	RJS-17	10	5.61 (13.69)	14.97 (22.76)	10.29
4.	NIC-8510-B	10	11.40 (19.73)	12.60 (20.79)	12.00
5.	S-00-18-B	10	5.21 (13.16)	10.57 (18.97)	7.89
6.	SI-271-B	10	4.77 (12.59)	6.91 (15.24)	5.84
7.	SI-1451	10	8.04 (16.45)	15.41 (23.11)	11.73
8.	NIC-9839	10	10.08 (18.50)	11.78 (20.07)	10.93
9.	SI-253	10	8.85 (17.31)	14.07 (22.03)	11.46
10.	OSC- 366	10	6.75 (15.05)	13.85 (21.85)	10.30
11.	SI-250(RC)	10	8.12 (16.55)	8.97 (17.42)	17.80
12.	TC-25 (SC)	10	7.07 (15.41)	27.47 (31.61)	8.02
SEM±			0.44	0.94	
CD at 5%			1.28	2.07	
CV%			4.98	7.95	

3.63% damage and categorized as tolerant. In short, the entry SI-271-B was found to be superior followed by MT-67-25. The results of feeding preference studies in Table 4 showed that the entries SI-271-B, IS-178-C and MT-67-25 were the least preferred entries whereas SI-250, NIC-8510-B and SI-253 were highly preferred entries by *A. catalaunalis*. Germplasm lines have such inhibitory mechanism of resistance to *Antigastra* which can be used in transferring the resistance in to commercially viable varieties. Even partially resistant cultivars may also provide adequate control even with minimum usage of insecticides. It will help to prolong the useful commercial life of existing insecticides by discouraging the development of insecticide resistance strains of the insect.

Acknowledgements

Authors gratefully acknowledge the Project Coordinating Unit Sesame and Niger (ICAR), JNKVV, Jabalpur (M.P.) India for providing the financial support and necessary facilities for carrying out this study.

References

Ahirwar RM, Gupta MP and Banarjee S. 2010. Field efficacy of natural and indigenous products on sucking pests of sesame. Indian Journal of Natural Products and Resources **1**(2): 221-226.

Ahuja DB and Kalyan RK 2001. Field screening of genotypes of sesame against leaf webber/capsule borer, *Antigastra catalaunalis* Dup., gallfly, *Asphondylia sesami* Felt and mite, *Polyphagotarsonemus latus* (Banks). Pest Manag. Econ Zool. **9**(1): 409-412.

Ahuja DB and Kalyan RK 2002. Losses in seed yield due to insect pests in different varieties of sesame, *Sesamum indicum* L. Annals. Plant Soil Res. **4**(1): 99-103.

Baskaran MRK, Ganesh SK and Thangavelu S 1994. Germplasm screening against sesame leaf roller and pod borer. Madras Agric. J. **81**(11): 618-621.

Choudhary R, Rai S and Singh KM. 1987. Economic injury level of the sesame leaf webber, *Antigastra catalaunalis* (Dup.) in Delhi. Indian J. Plant Prot. **15**(2): 136-141.

Egonyu J P, Kyamanywa S, Anyanga W and Ssekabembe C K. 2005. Review of pests and diseases of sesame in Uganda. In African Crop Science Conference Proceedings. **7**: 1411-1416.

Manisegaran S, Manimegalai N, Puspha J and Mohammed SEN 2001. Non- preference mechanism of resistance in sesame to shoot webber and capsule borer *Antigastra catalaunalis* (Dup.). Annals Plant Prot. Sci. **9**(1): 123-124.

Murli Bhaskaran, RK and Thangavelu S 1990. Germplasm Screening against sesame leaf roller and pod borer, Sesame and Safflowr News Letter 5: 40-45.

Singh V 2002. Reaction of sesame genotypes to leaf webber and capsule borer *Antigastra catalaunalis* (Duponchel) (Lepidoptera: Pyraustidae). Sesame and Safflower Newslett. 17: 52-53.

Selvanarayanan V and Baskaran B 1996.Varietal response of sesame to the shoot webber and capsule borer, *Antigastra catalaunalis* Duponchel (Lepidoptera: Pyraustidae). Int. J. Pest Manag. **42**(4): 335-336.

(Manuscript received on 3 July, 2018; revised on 2 November, 2020)