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EFFECT OF SELECTED RICE LANDRACES ON THE FECUNDITY AND SURVIVAL OF RICE LEAF FOLDER *CNAPHALOCROCIS MEDINALIS* (GUENEE)

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ABSTRACT

The rice leaf folder, *Cnaphalocrocis medinalis* (Guenee) is a significant pest causing outbreaks. This study focuses on the impact of selected rice landraces on the survivability of *C. medinalis*, aiming to identify potential sources for IPM and future breeding programs. The research encompassed 35 landraces, categorized as resistant, moderately resistant and susceptible based on net house screenings along with standard resistant check (TKM6) and susceptible check (TN1). The study evaluated fecundity, larval emergence, survival rates, and adult emergence on these genotypes. Results showed that resistant and moderately resistant genotypes significantly reduced the pest's fecundity and survival across various lifestages compared to susceptible ones. The findings indicated the possible existence of antibiosis factors in resistant genotypes.

Key words: *Cnaphalocrocis medinalis*, rice, landraces, antibiosis, survivability, fecundity, larval emergence, pupal survival, adult emergence, host plant resistance, IPM

The rice leaf folder *Cnaphalocrocis medinalis* (Guenee) (Lepidoptera: Pyralidae), is a serious pest of rice causing outbreaks (Dale, 1994). Its significance has escalated with the adoption of high-yielding varieties and the associated changes in agricultural practices, leading to decreased crop yields. Effective IPM strategies involve identifying sources of resistance and understanding the mechanisms that induce resistance against such pests. Plant resistance to insect infestation can be categorized into three factors: antibiosis, antixenosis, and tolerance (Painter, 1951). Factors like fecundity and survival of insect pests may be significantly affected by the quality of the host plant (Awmack and Leather, 2002). The host plant's morphological, physical, physiological, and chemical attributes interact with the pest, influencing its ability to seek out suitable hosts and affecting how effectively it can locate and exploit those hosts (Muller,1983). Interaction between host plants and pests provides a foundation for developing IPM strategies. Resistant varieties provide a sustainable approach, but donors of resistance remain largely unexplored. It is necessary to identify such sources and utilization of rice landraces, which were traditionally cultivated by farmers. With this objective in mind, the present study evaluates the impact of selected landraces on the survivability of *C. medinalis*.

MATERIALS AND METHODS

The material comprised 35 distinct landraces obtained from various regions of Odisha, along with a standard resistant check, TKM6 and a susceptible check, TN1. These consists of resistant, moderately resistant and susceptible genotypes which were rated on the basis of adjusted damage rating (ADAR) obtained from nethouse screening during kharif, 2021 and rabi, 2021-22. The ADAR between 1-30% (rating 1-3) were considered as resistant, between 31-50% (rating 5) as moderately resistant and 50% (rating 7-9) as susceptible. The ADAR % was computed using the observations on the damaged area in mm^2 of the test entry and the susceptible check. The % plant damage calculated was considered for conversion into damage scores following the standard evaluation system (SES) for rice (IRRI, 2013).

Cnaphalocrocis medinalis was reared following the protocol outlined by Waldbauer and Marciano (1979) at 25± 5°C, and 60± 10% RH. Larvae were collected from the field and were released onto the rearing chamber containing 30-day-old potted TN1 plants. Upon pupation, the pupae were collected and placed in petridishes lined with filter paper, then transferred to adult emergence cages. The newly emerged adult moths were immediately utilized for further experimental studies. The fecundity study was carried out within an ant-proof oviposition cages. Each cage contained two resistant, one moderately resistant, one susceptible category of Odisha landrace rice genotypes and the standard resistant and susceptible checks. Ten pairs of adult moths were collected from the adult emergence cage and introduced into the oviposition cage. To provide nourishment for moths, a cotton ball soaked in a 20% honey was placed inside the chamber. The moths were allowed to lay eggs for a period of three days. Subsequently, the eggs laid on each genotype were counted. This experiment was replicated three times. The survivability was observed inside an insect-proof nethouse at ICAR-NRRI, Cuttack. After oviposition, transparent mylar cages were used to cover the potted plants containing eggs. The first instar larval emergence was observed with observations repeated thrice. After the larval stage, the count was taken for the surviving 5th instar larvae, followed by the prepupae and pupae. Once pupation occurred, the pupae were transferred to an adult emergence chamber, and the number of emerging adults was recorded. The data were analyzed in a completely randomized block design, with data presented as mean values along with standard errors (mean± SE). The data were subjected to ANOVA, and means were compared using Tukey's honestly significant difference (HSD) test (p=.0.05) using IBM SPSS version 22.

RESULTS AND DISCUSSION

The genotypes selected consisted of 19 resistant,10 moderately resistant, and 6 susceptible (Table 1). The fecundity of *C. medinalis* revealed significant variations (66.67± 1.20 to 175.33± 4.37; in resistant ones it was 66.67± 1.20 to 73.33± 2.33; with Kalakusuma exhibiting the least; in the moderately resistant ones it ranged from 88.00± 1.16 to 100.33± 0.88; with the least being in Agnisar (88.00± 1.16); while among the susceptible ones it varied from 144.33± 0.88 to 178.00± 5.20; with maximum being with Nimei (178.00± 5.20), followed by N. umerchudi (175.33± 4.37) and Safari (168.00± 2.08). During 2023, also similar trend was observed. In the survivability study, the number of first instar larvae emerging from eggs ranged from 51.00± 1.53 to 164.00± 8.08 with notably, resistant landraces like Bhatta (51.00± 1.53), Basudha (52.00± 1.16) and Bayabhanda (55.33± 1.20) showing the least values; while the susceptible ones like Nimei (164.00± 8.08), N. umerchudi (163.00± 5.29) and Safari (156.67± 1.67) showing maximum values. During 2023 too similar trend was observed. Survival of fifth instar larvae, ranged from 34.33± 1.20 to 136.33± 8.09, with resistant ones, particularly Basudha (34.33± 1.20), Bhatta (34.33± 2.33) and Bayabhanda (37.67± 2.03) showing the least survival rates; in the susceptible N. umerchudi (136.33± 8.09), Nimei (134.33± 9.39) and Safari (130.67± 3.53), these values were maximum, with similar trend seen in 2023.

Number of larvae entering the prepupal stage ranged between 30.33± 1.20 and 131.33± 9.26 with resistant Basudha (30.33± 1.20), Bhatta (30.67± 2.60) and Kalakusuma (29.67± 2.67) showing least values and the susceptible N.umerchudi (131.33± 9.26), Nimei (127.00± 8.89) and Safari (123.00± 2.89) showing more; this trend was seen in 2023 too. Likewise pupation ranged from 27.33± 1.20 to 126.33± 7.51 with the least values being in the resistant Basudha (27.33± 1.20), Bhatta (28.00± 2.89) and Kalakusuma (29.67± 2.67); the susceptible ones such as N.umerchudi (126.33± 7.51), Nimei (123.67± 8.97), and Safari (115.67± 1.67) showed highest pupal numbers; in 2023 also similar trend was observed. During 2022, the total number of adults that emerged ranged from 19.00± 1.00 to 109.33± 2.03; least values were in the resistant ones like Basudha (19.00± 1.00), Bhatta (19.67± 0.33) and Kalakusuma (20.67± 2.19); and maximum with susceptible types- Nimei (109.33± 2.03), N.umerchudi (108.33± 5.46), and Safari (105.67± 5.04); with similar trend observed during 2023.

The results indicate that when reared on resistant and moderately resistant landraces, *C. medinalis* showed less fecundity, as well as lower rates of larval emergence and survival across various life stages, including larvae, pupae, and adults, compared to those reared on susceptible landraces. Analyzing the impact of damage (ADAR) on the survivability, it was observed that resistant and moderately resistant genotypes with lower ADAR exerted the most pronounced effects on fecundity ($r=0.958$, $R^2=0.919$, $p<0.005$), adult emergence ($r= 0.861$, $R^2=0.742$, $p<0.005$), larval emergence ($r= 0.852$, $R^2=0.726$ and larval survival ($r= 0.846$, $R^2=0.716$, $p<0.005$) in contrast to the effects on prepupal ($r= 0.682$, $R^2=0.465$, $p<0.005$) and pupal survival ($r= 0.603$, $R^2=0.364$, $p<0.005$). Thus, a positive trend was noted in fecundity and survivability of larvae, pupae and adults with increase in the susceptibility (Table 1).

This trend can be attributed to the conducive nature of susceptible genotypes for the pest, whereas it faced

Table 1. Effect of rice landraces on survivability of lifestages of *C. medinalis*

S. No.	Genotypes	Score	No. of eggs laid		No. of 1st instar larvae emerged		No. of 5th instar larvae survived		No. of pre-pupa formed		No. of pupa formed		Total no. of Adults emerged	
			2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
1	Benabahar(R)	3	71.00±1.16^{j}	77.00±3.79^{efghij}	58.67±1.86^{i}	55.67±2.19^{ghi}	40.67±1.86^{hij}	43.67±3.84^{defghij}	36.67±1.86^{jkl}	36.33±1.76^{ghi}	34.33±1.67^{jkl}	30.00±2.08^{d}	24.33±0.88^{fg}	26.00±2.52^{f}
2	Kalajeera (B)(R)	3	72.33±1.20^{j}	65.33±3.53^{ij}	57.00±0.10^{i}	52.33±2.33^{i}	40.67±1.67^{hij}	41.00±3.51^{fghij}	36.00±1.00^{jkl}	33.00±1.16^{i}	32.67±0.67^{kl}	28.00±1.00^{d}	23.33±0.33^{fg}	23.0±0.58^{f}
3	Basudha(R)	3	68.33±0.67^{j}	60.00±4.62^{j}	52.00±1.16^{i}	48.00±3.22^{i}	34.33±1.20^{j}	33.67±4.81^{j}	30.33±1.20^{l}	28.00±1.16^{i}	27.33±1.20^{l}	23.33±1.20^{d}	19.00±1.00^{g}	20.67±2.33^{f}
4	BayaBhanda(R)	3	70.00±0.58^{j}	68.00±1.64^{hij}	55.33±1.20^{i}	49.33±1.86^{i}	37.67±2.03^{j}	36.67±5.46^{hij}	34.00±2.89^{kl}	31.67±1.45^{i}	31.67±3.48^{kl}	26.67±1.76^{d}	23.00±3.22^{fg}	23.67±3.84^{f}
5	Bhalunki(R)	3	71.33±0.88^{j}	72.00±2.62^{fghij}	58.67±0.88^{i}	54.33±2.40^{hi}	40.00±1.00^{ij}	42.33±3.28^{efghij}	36.00±1.00^{jkl}	34.67±0.88^{i}	33.33±1.33^{jkl}	28.00±1.00^{d}	23.00±1.16^{fg}	26.00±3.22^{f}
6	Bhatta(R)	3	68.33±1.20^{j}	67.33±2.40^{hij}	51.00±1.53^{i}	45.33±2.19^{i}	34.33±2.33^{j}	35.33±1.45^{ij}	30.67±2.60^{l}	28.67±0.67^{i}	28.00±2.89^{l}	20.67±1.45^{d}	19.67±0.33^{g}	20.00±0.58^{f}
7	Manepuri (R)	3	72.00±2.08^{j}	78.00±3.42^{efghij}	61.00±1.53^{ghi}	56.33±1.45^{ghi}	42.67±2.03^{ghij}	44.67±4.84^{defghij}	38.33±2.60^{ijkl}	37.00±1.53^{fghi}	36.00±3.22^{ijkl}	30.33±3.38^{d}	26.00±2.65^{efg}	25.67±2.33^{f}
8	Mahasuri(R)	3	71.33±1.20^{j}	76.00±2.65^{efghij}	60.00±1.53^{hi}	57.00±2.52^{fghi}	41.67±2.33^{ghij}	46.00±2.65^{defghij}	37.67±2.73^{jkl}	38.33±2.60^{fghi}	35.00±3.00^{jkl}	28.33±1.33^{d}	25.67±2.73^{efg}	26.00±2.52^{f}
9	Jangalijata(R)	3	69.67±0.88^{j}	74.00±4.02^{efghij}	57.67±1.20^{i}	53.67±1.86^{i}	44.67±2.03^{fghij}	42.33±1.45^{efghij}	42.33±2.73^{fghijkl}	34.33±1.20^{i}	40.67±2.96^{fghijkl}	28.33±0.88^{d}	28.67±1.86^{defg}	25.00±0.58^{f}
10	Pahadiabanki(R)	3	71.67±1.45^{j}	75.00±4.12^{efghij}	59.00±1.53^{i}	56.00±3.22^{ghi}	42.67±1.76^{ghij}	44.33±3.84^{defghij}	39.33±2.03^{hijkl}	36.67±1.76^{ghi}	37.00±2.31^{hijkl}	29.33±1.33^{d}	26.00±1.16^{efg}	25.33±0.67^{f}
11	Kalakusuma(R)	3	66.67±1.20^{j}	64.33±2.33^{ij}	56.33±2.60^{i}	52.33±1.76^{i}	37.33±2.40^{j}	38.67±6.01^{ghij}	33.00±2.52^{kl}	31.67±1.20^{i}	29.67±2.67^{l}	24.33±1.20^{d}	20.67±2.19^{g}	21.33±2.85^{f}
12	Kaliasaru(R)	3	71.33±1.86^{j}	76.00±5.51^{efghij}	59.67±2.91^{i}	58.33±3.53^{efghi}	41.67±2.33^{ghij}	45.00±4.04^{defghij}	37.53±2.27^{jkl}	36.67±2.03^{ghi}	34.67±1.86^{jkl}	30.00±2.08^{d}	24.00±0.58^{fg}	26.00±2.52^{f}
13	Kanhav(R)	3	71.67±0.67^{j}	74.00±3.12^{efghij}	60.67±1.20^{hi}	57.00±3.06^{fghi}	42.67±0.88^{ghij}	42.33±5.18^{efghij}	38.67±1.45^{hijkl}	35.00±0.58^{i}	35.67±2.03^{ijkl}	29.67±0.88^{d}	25.67±2.03^{efg}	26.67±2.33^{f}
14	Kansapurimajhi jhuli(R)	3	73.33±2.03^{j}	73.67±4.66^{efghij}	62.00±2.08^{ghi}	58.00±1.53^{efghi}	43.67±3.38^{fghij}	48.33±3.28^{defghij}	39.67±3.84^{ghijkl}	39.67±1.45^{efghi}	37.67±4.33^{ghijkl}	31.33±3.84^{d}	24.67±2.91^{efg}	24.33±2.60^{f}
15	Menaka(R)	3	73.33±2.33^{j}	72.00±4.62^{efghij}	60.67±1.45^{hi}	54.67±1.67^{hi}	42.33±1.20^{ghij}	42.33±5.18^{efghij}	38.33±1.76^{ijkl}	34.67±0.88^{i}	36.00±2.08^{ijkl}	30.00±1.16^{d}	25.67±1.45^{efg}	25.33±1.20^{f}
16	Mogra(R)	3	71.00±1.73^{j}	77.00±2.62^{efghij}	58.33±1.76^{i}	54.00±3.79^{hi}	39.33±1.20^{ij}	39.33±4.81^{ghij}	35.00±1.16^{kl}	32.67±0.33^{i}	32.00±1.16^{kl}	28.67±0.88^{d}	22.00±1.53^{g}	25.67±4.41^{f}
17	Nagara(R)	3	72.67±1.45^{j}	75.67±4.33^{efghij}	60.00±2.52^{hi}	56.67±4.41^{ghi}	41.00±0.58^{hij}	43.67±2.03^{defghij}	37.67±1.67^{jkl}	37.00±1.53^{fghi}	35.00±2.52^{jkl}	28.67±1.20^{d}	25.67±2.73^{efg}	25.67±0.88^{f}
18	Padmakesari(R)	3	70.67±1.20^{j}	76.00±3.82^{efghij}	58.67±0.88^{i}	54.33±2.33^{hi}	41.00±1.16^{hij}	43.67±1.86^{defghij}	38.00±2.08^{jkl}	35.67±2.33^{hi}	35.33±2.40^{jkl}	29.33±1.45^{d}	25.67±2.19^{efg}	26.00±2.08^{f}
19	Radhajugal(R)	3	71.33±0.88^{j}	70.00±1.28^{ghij}	57.67±1.76^{i}	53.00±1.53^{i}	40.33±1.33^{ij}	40.67±4.37^{fghij}	36.67±2.19^{jkl}	33.00±1.53^{i}	34.00±3.06^{jkl}	27.67±1.76^{d}	24.00±0.58^{fg}	24.33±0.88^{f}

(contd.)

(contd. Table 1)

20	Agnisar(MR)	5	88.00± 1.16^{i}	85.67± 1.45^{defghi}	76.00± 2.00^{fgh}	73.33± 2.40^{defg}	58.00± 2.65^{efgh}	63.00± 2.31^{defg}	54.00± 3.06^{efghij}	52.00± 1.16^{defgh}	51.33± 2.85^{efghij}	46.33± 1.20^{c}	41.00± 1.53^{cd}	42.00± 1.73^{e}
21	Ankul(MR)	5	92.67± 1.76^{ghi}	89.00± 0.58^{defgh}	82.37± 1.84^{f}	78.67± 3.84^{d}	63.67± 1.20^{e}	65.67± 2.40^{def}	60.67± 1.67^{ef}	61.67± 1.45^{d}	58.33± 1.33^{ef}	56.00± 1.53^{c}	45.00± 1.00^{c}	52.00± 2.52^{e}
22	Chinamali-k(MR)	5	92.00± 2.08^{ghi}	91.67± 3.38^{defg}	78.33± 1.86^{f}	75.33± 3.53^{def}	61.00± 2.31^{ef}	63.33± 3.84^{defg}	57.80± 2.72^{efg}	56.00± 1.53^{de}	55.67± 3.18^{efg}	50.33± 2.91^{c}	42.00± 2.89^{cd}	46.33± 2.33^{e}
23	Maguramanji(MR)	5	96.67± 1.33^{ghi}	85.00± 1.73^{defghi}	82.67± 0.88^{f}	79.00± 2.52^{d}	65.00± 2.08^{e}	68.33± 2.33^{d}	61.67± 2.73^{e}	62.33± 2.60^{d}	59.33± 2.40^{e}	54.00± 0.58^{c}	45.33± 2.03^{c}	49.67± 3.48^{e}
24	Maharaji(MR)	5	96.33± 2.33^{ghi}	94.67± 1.45^{def}	82.00± 1.73^{f}	77.33± 4.33^{d}	61.00± 2.65^{ef}	63.33± 3.53^{defg}	57.00± 3.22^{efgh}	57.00± 3.22^{d}	55.00± 3.79^{efgh}	50.00± 1.53^{c}	43.67± 0.88^{c}	46.67± 2.67^{e}
25	Mahipal-B(MR)	5	89.67± 1.20^{ghi}	93.33± 1.76^{def}	77.00± 0.58^{fg}	72.33± 2.03^{defgh}	55.67± 0.88^{efghi}	57.33± 3.67^{defghij}	51.00± 1.00^{efghijk}	52.67± 2.33^{defg}	48.33± 1.20^{efghijk}	47.67± 2.33^{c}	37.00± 2.08^{cdef}	44.00± 2.65^{e}
26	Majhalijhuli(MR)	5	94.33± 1.86^{ghi}	85.33± 2.19^{defghi}	81.00± 2.89^{f}	76.33± 2.40^{de}	58.67± 1.45^{efg}	60.33± 5.67^{defghi}	54.00± 1.53^{efghij}	53.67± 1.20^{def}	51.33± 1.86^{efghij}	48.00± 2.65^{c}	38.67± 2.33^{cde}	43.33± 0.88^{e}
27	Mayurkantha-k (MR)	5	93.33± 1.33^{ghi}	97.00± 2.00^{de}	81.67± 2.60^{f}	79.33± 3.38^{d}	62.67± 3.18^{e}	68.00± 2.08^{de}	59.33± 3.76^{ef}	58.67± 3.84^{d}	57.00± 3.79^{ef}	51.00± 1.73^{c}	45.67± 2.19^{c}	47.33± 1.76^{e}
28	Motahalkal(MR)	5	100.33± 0.88^{g}	106.67± 0.33^{d}	87.33± 0.88^{f}	82.67± 2.60^{d}	62.33± 1.20^{e}	62.33± 7.67^{defgh}	56.67± 2.33^{efghi}	58.00± 3.22^{d}	53.67± 3.33^{efghi}	51.33± 0.67^{c}	41.00± 4.00^{cd}	46.33± 2.40^{e}
29	Nadalghanta(MR)	5	97.33± 1.86^{gh}	91.67± 1.67^{defg}	86.67± 1.67^{f}	79.00± 3.00^{d}	64.33± 2.33^{e}	64.00± 4.00^{defg}	60.67± 2.67^{ef}	61.00± 2.52^{d}	59.00± 3.00^{e}	54.67± 2.73^{c}	46.67± 1.67^{c}	50.67± 0.67^{e}
30	Kathidhan(S)	7	155.67± 3.48^{de}	148.00± 4.58^{abc}	143.00± 4.58^{cde}	139.33± 3.53^{b}	113.33± 3.48^{bcd}	120.67± 5.46^{bc}	108.00± 2.65^{bcd}	108.00± 2.65^{bc}	103.67± 3.48^{bcd}	99.00± 1.53^{b}	91.33± 2.85^{b}	93.33± 2.73^{bcd}
31	Nimei(S)	9	178.00± 5.20^{a}	169.00± 8.08^{a}	164.00± 8.08^{a}	161.33± 5.37^{a}	134.33± 9.39^{a}	148.00± 7.00^{a}	127.00± 8.89^{a}	126.00± 9.17^{a}	123.67± 8.97^{a}	116.00± 1.16^{a}	109.33± 2.03^{a}	110.00± 2.08^{a}
32	Ganjamratnachudi (S)	7	144.33± 0.88^{f}	133.33± 0.88^{c}	128.33± 0.88^{e}	120.87± 3.58^{c}	103.33± 0.67^{d}	105.67± 4.33^{c}	98.33± 1.20^{d}	101.00± 1.53^{c}	95.33± 1.20^{d}	91.33± 0.33^{b}	89.33± 4.70^{b}	88.33± 0.88^{d}
33	N.umerchudi(S)	9	175.33± 4.37^{ab}	168.00± 5.29^{a}	163.00± 5.29^{ab}	162.23± 4.40^{a}	136.33± 8.09^{a}	146.33± 4.33^{ab}	131.33± 9.26^{a}	128.67± 9.82^{a}	126.33± 7.51^{a}	120.00± 3.61^{a}	108.33± 5.46^{a}	113.00± 3.46^{a}
34	Safari(S)	9	168.00± 2.08^{bc}	161.67± 1.67^{ab}	156.67± 1.67^{abc}	150.37± 2.69^{ab}	130.67± 3.53^{ab}	131.33± 8.74^{abc}	123.00± 2.89^{ab}	121.67± 1.86^{ab}	115.67± 1.67^{ab}	115.33± 4.10^{a}	105.67± 5.04^{a}	107.67± 5.84^{ab}
35	Ramkrushna bilasha (S)	7	146.67± 2.91^{ef}	139.33± 4.91^{bc}	134.33± 4.91^{de}	133.07± 5.36^{bc}	106.67± 3.18^{cd}	111.33± 6.89^{c}	101.0± 2.65^{cd}	99.67± 1.86^{c}	97.00± 1.53^{cd}	92.33± 2.03^{b}	89.67± 4.63^{b}	91.33± 4.81^{cd}
36	TKM6(RC)		71.00± 2.08^{j}	63.67± 3.93^{ij}	58.67± 3.93^{i}	53.03± 1.04^{i}	41.67± 2.85^{ghij}	40.33± 4.33^{fghij}	37.00± 2.08^{jkl}	33.00± 1.53^{i}	33.33± 1.45^{jkl}	28.33± 1.45^{d}	22.67± 0.67^{g}	24.00± 1.16^{f}
37	TN1(SC)		160.33± 4.41^{cd}	152.33± 7.22^{abc}	147.33± 7.22^{bcd}	149.60± 7.43^{ab}	122.33± 6.33^{abc}	130.33± 6.07^{abc}	117.67± 5.84^{abc}	113.00± 5.13^{abc}	115.00± 5.00^{abc}	111.33± 5.78^{a}	101.00± 2.08^{ab}	103.33± 1.20^{ab}
	CD		5.855	9.443	8.005	9.158	8.643	8.889	9.129	8.411	9.085	6.058	7.089	7.180
	SE(m)		2.074	4.053	2.835	3.243	3.061	4.565	3.233	2.979	3.217	2.146	2.511	2.543
	CV		3.810	7.575	6.026	7.243	8.46	8.37	9.813	9.273	10.284	7.573	10.056	9.781
	FCal		280.724	61.41	149.92	118.525	103.46	53.59	88.41	106.53	85.83	199.23	132.49	133.68
	r		0.958		0.852		0.846		0.682		0.603		0.861	
	R^2		0.919		0.726		0.716		0.465		0.364		0.742	

Data represented as Mean± SE of three replications. In a column, mean value followed by the same letters not significantly different at p=0.05 as per Tukey's HSD test.
R- Resistant, MR- Moderately resistant, S- Susceptible. RC-Resistant check, SC- Susceptible check. r = Correlation coefficient, R^2= Coefficient of determination

challenges in growth, survival, and reproduction on resistant genotypes (Abenes and Khan, 1990). The reduction in fecundity and survival of *C. medinalis* on resistant and moderately resistant genotypes suggest potential antibiosis factor. This factor has the capacity to significantly curtail the population buildup of compared to that in susceptible varieties (Khan and Joshi, 1990). Similar findings were reported by Punithavalli et al. (2014), revealing lower numbers and survivability of *C. medinalis* eggs, larvae, and pupae on resistant and wild genotypes. Rajdurai et al. (2021) observed significant differences in adult emergence in resistant transgenic and wild rice compared to susceptible checks (TN1). Rekha et al. (2003) observed substantial reduction in moth emergence on transgenic plants. Larvae that fed on susceptible genotypes exhibited higher survival rates, shorter growth and development periods, and increased pupation rates (Dhakshayani et al., 1993). Resistant landraces such as Bhatta, Basudha, Bayabhanda, Kalakusuma, Kalajeera (I) and TKM6 performed exceptionally well. This might be due to certain biophysical or biochemical factors that curtailed the population buildup. These genotypes are likely to be rich sources of valuable genes for insect pest resistance, and hold promise for IPM.

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AUTHOR CONTRIBUTION STATEMENT

AKN carried out the experiments, analyzed the data, and wrote the manuscript. AS and PG guided the experiments and participated in statistical analysis. SSD participated in the experiments and revised the manuscript. SDM and TS reviewed the draft. All authors read and approved the manuscript.

CONFLICT OF INTEREST

No conflict of interest.

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