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Short Communication

VARIABILITY IN CHICKPEA GENOTYPES FOR RESISTANCE TO *CALLOSOBRUCHUS CHINENSIS* L.

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The chickpea (***Cicer arietinum L***) is one of the most important grain legumes crops different species of beetles of the family bruchidae in storage and causes more than 10 per cent damage during storage. It is recorded that 55-60% loss in seed weight and 45.50 to 66.30% loss in protein content of pulses is due to infestation caused by this beetle (Faruk *et al.*, 2011). Hence the study was carried out using chickpea. The present investigation was carried out under laboratory condition in the department of entomology AICRP. Chickpea main centre Sehore (M.P.). Fifty gram seeds of each cultivar was kept in separate glass jar and then ten pairs of freshly emerged beetles were released in each plastic jar and beetles were forced to lay eggs. All the beetles were removed from plastic jars after their death. The experiment was carried out three times. Observations were taken after one month for per cent loss in weight. Per cent loss in weight was calculated by the formula:

Percent loss in seed weight = {[(wt. of seeds before release of pulse beetle – wt. of seeds after beetel release) x 100] \ wt. of seeds before beetle release

Per cent infestation of pulse beetle was also calculated according to formula given by Erler *et al* (2009):

Percent infestation = (Number of seeds shiwing x 100)\Total Number of seeds

Fifty gram of chickpea seeds from each cultivar were kept for three months with bruchid and without bruchid separately in storage. After three months, per cent germination and viability of seeds for both the sets were tested. One hundred seeds from each treatment were soaked in water for 24 hours in plastic cups, then wrapped in paper towels and were kept for overnight to sprout. Observation on germination and normal growth of seedlings was recorded after first, second, third and fourth day. The data so obtained were subjected to statistical analysis for analysis of variance.

Per cent weight loss: The results (Table 1) showed significant differences in varieties regarding the per cent weight loss. The maximum weight loss (32.5 %) was observed in JGK 1 which differed significantly from rest of the varieties. The lowest seed weight loss (3.3 %) was observed in JG 74 which didn't differ significantly with JG 11 (4.8 %), JG 130 (9.0 %) and ICCV 10 (7.4 %). The Rai and Singh (1989) showed less per cent weight loss in JG 130 cultivar which is also supportive to our findings.

Table 1: Effect of *C. chinensis* weight loss and seed infestation of chickpea

Variety	Control	Infested seed after10 days	Weight loss (%)*	Infestation (%)*
Kabuli				
JGK 1	94	0.5	32.59 (34.82)	96.71 (79.53)
ICCV 2	96	9	19.47 (26.21)	89.35 (70.91)
BG 1053	97	9	23.36 (28.93)	92.86 (74.55)
Deshi				
JG 11	96.5	11	4.83 (12.66)	1.05 (5.74)
JG 74	95	37	3.33 (10.47)	1.03 (5.74)
JG 130	97	4	9.03 (17.46)	66.99 (54.94)
JG 315	99	2.5	22.70 (29.13)	74.55 (59.67)
ICCV 10	99	33	7.40 (15.79)	39.71 (39.05)
CD (P=0.05)	NS	11.37	(3.32) (12.73)	(1.51) (5.78)

Per cent infestation: On the basis of data (Table 2) significant differences were found in tested varieties with respect to per cent infestation. Maximum infestation (96.7 %) was found in JGK 1 which didn't

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differ significantly from BG 1053 (92.8 %) and ICCV 2 (89.3 %).Variety JG 130 (66.9 %) and JG 315 (74.5 %) didn't differ significantly. Least infestation (1.03 %) was observed in JG 74 which was at par with JG 11(1.0%). Erler *et al.* (2009) reported maximum infestation of pulse beetle in *kabuli* cultivars. Germination of seeds after 3 months of insect release showed significant differences among chickpea varieties. Maximum germination percentage after 3 months of bruchids release was observed in JG 74 (37 %), while JG 11 recorded 11 % germination. JGK 1 recorded very low germination percentage (0.5 %). ICCV 2 and BG 1053 and ICCV 2 recorded 9 % germination (Table 3). The highest loss in germination observed in JGK 1 is probably because of maximum ovipositional preference and highest adult emergence in this cultivar. Dhepe *et al.* (1993) reported that the germination of different varieties of green gram, red gram and soybean affected to varying degrees by infestation with *C. chinensis.* Riaz *et al.*, (2000) found chickpea cultivar NCS-960003 partially resistant and NCS-960002 partially susceptible. Jha *et al. (*2009) found cultivar BG-267 to be highly preferred by pulse beetle and cultivar BG-256 least preferred.

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