SHORT COMMUNICATION

Natural Aging Effect on Seed Germinabilty of Clusterbean Cultivars

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Seeds of eight varieties of clusterbean or guar (*Cyamopsis tetragonoloba* L. Taub.) stored for 7, 19 and 31 months, respectively, under ambient storage conditions were assessed for their germinability under field conditions. Almost complete loss of viability was observed in the seeds, which were stored for 31 months or three crop seasons. The best germination was recorded in the seeds that were stored for 7 months or one crop season. Differential response to germinability was observed in different varieties of guar. For achieving optimum germination and better crop stand, only one season old (about 7-8 months) seeds should be utilized for sowing in the fields.

Key Words: Clusterbean, Natural Aging, Seed Germination

The maintenance of viability of the seed embryo of any plant species is important for two main reasons *i.e.* for the utilization of carry-over quality seed for sowing in the next season and for long-term conservation of genetic resources owing to limitations in growing whole germplasm every year. Deterioration in the condition of the seeds prevents them from normal germination and vigorous growth due to certain physiological and biological changes occurring in the seeds during storage. But no published work is available on the effect of natural aging or variable storage period on seed germinability in guar. Hence, to assess the effect of natural aging and response of different cultivars on germinability, an experiment was conducted in field on eight genotypes of guar seeds stored for three consecutive seasons.

One (7 months), two (19 months) and three (31 months) seasons old seeds of eight diverse genotypes of guar were taken for this study. After threshing, the seeds were sun-dried and stored in cloth bags under ambient conditions in the field laboratory. The age of seed lots harvested in 1996, 1995 and 1994 were 7 months, 19 months, and 31 months, respectively. One hundred seeds of each genotype of three ages were sown in the dryland area of Forage Section, Department of Plant Breeding, CCS Haryana replications. The row to row and plant to plant spacings were 45 and 10 cm, respectively. Germination counts were made after 25 days of sowing.

The data for germination counts were transformed into square-root (X+1) values for statistical analysis.

The results of germination of eight genotypes of guar stored for 3 different durations are presented in Table 1. Data revealed that per cent mean germination was very low in 31-month-old seeds, which ranged from 0.00 to 14.33. Genotypes FS 277,

Table 1. Effect of natural aging and cultivars on seed germinability in guar*

Genotypes	7 months or one-season-old	19 month or two-season-old	31 months or three-season-old	Average
FS 277	8.50 (71.33)	1.00 (0.00)	1.00 (0.00)	3.50 (23.78)
CP 42	8,12 (65.00)	1.00 (0.00)	1.00 (0.00)	3.37 (21.67)
RGC 936	8.89 (78.00)	7.80 (60.00)	1.00 (0.00)	5.90 (46.00)
Naveen	8.72 (75.00)	1.00 (0.00)	1.00 (0.00)	3.57 (25.00)
HG 258	9.09 (81.67)	1.00 (0.00)	1.00 (0.00)	3.70 (27.22)
HGS 329	9.57 (90.67)	8.94 (79.00)	1.00 (0.00)	6.50 (56.56)
HG 365	8.20 (66.33)	1.00 (0.00)	1.00 (0.00)	3.40 (22.11)
HFG 156	9.22 (84.00)	8.92 (68.67)	3.91 (14.33)	7.35 (55.67)

SE (M) ±	Variety	: 0.08	CD at 5%	Variety	: 0.16
	Aging	: 0.05		Aging	: 0.10
	Variety x Aging	: 0.13		Variety x Aging	: 0.27

* Figures not in parentheses are square root (X + 1) (transformed values)
Figures in parentheses are actual germination per cent values (Untransformed values)

CP 42, RGC 936, Naveen, HC 258, HGS 329 and HC 365 did not germinate at all, whereas only one genotype HFG 156 gave 14.33% germination. In 19-month-old seeds, germination percentage varied from 0.00 to 79.00. Genotypes FS277, CP 42, Naveen, HG 258 and HG 365 did not germinate at all. The average germination percentage of all the eight genotypes of 19-month-old seeds was 25.96. In 7-months-old seeds, the germination (%) in the field ranged from 65.00 to 90.07 with an overall average of 76.50%.

From the above findings, it is clear that guar seeds appeared to be very fast deteriorating in their germinability with increase in the storage period. Therefore, for achieving optimum seed germination, one season old (7-8 months old) seeds should preferably be utilized for sowing in the field. However, there is a need for further research to find out the optimum storage conditions under which guar seeds could be stored for a longer period.

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