

STANDARDIZATION OF GERMINATION TEST IN KASURI METHI (*TRIGONELLA CORNICULATA* L.)

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SUMMARY

An experiment was conducted to standardize the germination test for kasuri methi crop as standard conditions for this test were not available in ISTA rules. Highest germination percentage (77.33) was exhibited in a two-way interaction (TP, 20°C) of substrate and temperature. Therefore, seeds of this leguminous crop may be tested for standard germination by TP method at 20°C and the seedlings may be finally evaluated on 10th day.

Key words : Standardization, germination test, kasuri methi

Fenugreek is an important multipurpose leguminous crop. There are two cultivated species viz., *Trigonella foenum-graecum* and *T. corniculata* of fenugreek, usually grown in several states of India. In Haryana, both these species are cultivated, however, kasuri methi comparatively in small area. High quality seed is pre-requisite to enhance production and productivity of any crop. The germination test is widely used as seed quality test. Moreover, standard conditions for laboratory germination test were given for most of the main cultivated crops including fenugreek (*T. foenum-graecum*) but the standards were not available for kasuri methi in the ISTA rules (ISTA, 1999). Thus, the present study was carried out on kasuri methi to standardize the seed germination procedure in order to assess quality and planting value of seed-lots.

Experimental material constituted freshly harvested seeds of the genotype GC-208. For optimization of laboratory conditions for germination test, the seeds were placed in combinations of two methods of substrate (TP and BP) and two constant temperatures (20° and 25°C) replicated thrice. Observations on number of seedlings, un-germinated and hard seeds were recorded daily for 14 days. Normal seedlings plus hard seeds were considered for estimation of germination percentages.

Seed germination test indicated the maximum emergence potential of a seed-lot under favourable conditions (a combination of substrate and temperature)

for a specified testing period. Significant differences were observed between treatment combinations and indicated presence of substantial amount of variation. The germination ranged from 46.00 to 77.33 per cent (Table 1).

TABLE 1
Mean data on germination percentage

Substratum	Temperature	Germination (%)
T. P.	20°C	77.33
	25°C	64.00
B. P.	20°C	58.66
	25°C	46.00

Perusal of data clearly revealed that maximum germination (77.33%) was observed in combination of TP (Top of paper) at 20°C and found better than other combinations. The TP method also showed superiority over BP (Between paper) method at both the temperatures, because in the TP method sufficient germination percentage (normal seedlings >60%) was recorded. Temperature effect was evidenced as germination percentages were higher in magnitude at 20°C. Therefore, the standard germination testing method (TP, 20°C) was found optimal for this species of fenugreek. For duration of test, final count should be taken on 10th day as there was no further increase in total number of seedlings and number of normal seedlings with requisite growth became stable. It can be concluded

form the present study that seeds of kasuri methi may be tested for standard germination in TP substrate at 20°C and final count may be taken on 10th day. These findings were in contrast to the standard germination test method (TP, BP, 20, 20-30°C with 14th day of test duration) as mentioned in ISTA rules for other cultivated species of fenugreek (*T. foenum-graecum*). Similarly, the germination testing methods were standardized by Agarwal and Karihalloo (1975) in pigeonpea, Verma *et al.* (1987) in guar and Deswal *et al.* (2002) in ricebean (*Vigna umbellata*).

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