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Standardization of germination test requirements for *Cenchrus glaucus*

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SUMMARY

In *Cenchrus glaucus* studies on the effect of temperature and media revealed that seeds germinated better at the alternate temperature regimes than at constant temperature. Seed germination and seedling vigour parameters were maximum at alternate temperature of 25-30°C. Sand and roll towel medium performed well, in producing vigorous seedlings even though radicle emergence was delayed in sand medium.

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Key words : *Cenchrus*, Germination test conditions, Media

Seed testing and test conditions play an important role in assessing the quality of seeds. The germination test requirements for *Cenchrus* sp. are top of the paper or sand medium at 20-35^0 or 20-30^{0}C at 90 $\pm$ 5% RH as per 1ST A rules (ISTA, 1999). But *Cenchrus glaucus* seeds behaved differently at high temperature. Emergence was very early and seedlings mortality was observed at the end of germination period of 14 days (ISTA, 1999) and between paper method produced more vigourous /lengthier seedlings than the top of paper method. Difference of opion was observed by various workers on the temperature requirement for germination of *Cenchrus ciliaris*. Lahiri and Kharabanda (1964) indicated that germination of *C. ciliaris* occurred better at temperature in excess of 30^{0}C than at 25^{0}C. AI-ani and Ouda (I969) reported that increase in temperature had positive influence on germination of *Cenchrus ciliaris* and *C. setigerus* and recommended 25- 30^{0}C. But Low (1981) recommended KNO_3 soaking as a pre treatment and an alternate temperature of 20-35^{0}C for testing buffel grass. Hence, the present study was initiated with different media *viz.*, TP, BP and sand at different constant and alternate temperature regimes to fix suitable medium and temperature for *C. glaucus* seeds.

MATERIALS AND METHODS

Cenchrus glaucus (Blou buffel) cv. CO1 is a selection from the local line FS 391 released by Tamil Nadu Agricultural University, Coimbatore. Six months old fluffs were imposed with the following test conditions to standardise the optimum temperature and suitable medium for germination of the fluffs. The germination period imposed was 14 days.

Temperature:

20^{0}C, 25^{0}C and 30^{0}C as constant and 20-25^{0}C. 20-30^{0}C and 25-30^{0}C as alternate temperature (Higher temperature for 8h and lower temperature for 16 h)

Media :

Sand (S), Roll towel (RT) and Top of paper (TP) designated as M_1, M_2 and M_3 The experiment was conducted with a CRD design with four replications. The fluffs were evaluated for number of days for germination initiation (radical emergence), rate of germination, germination, root and shoot length, dry matter production and vigour index values (Abdul- Baki and Anderson, 1973).

Fluff was considered as a single seed unit for counting as normal seedling for germination percentage. During the germination test, the emergence of seedling was counted from initiation up to completion and the mean percentage germination was recorded on each counting date; rate of germination was calculated using the following formula (Maguire, 1962).

$$\text{Rate of germination} : \frac{x_1}{y_1} + \frac{x_2 - x_1}{y_2} + \ldots\ldots + \frac{x_n - x_{(n-1)}}{y_n}$$

(where, x_n - number of seeds germinated at nth day and y_n - no of days from sowing to nth day)

Data were analysed following Snedecor and Cochran (1967).

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