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# Effect of dormancy breaking treatments on the caryopses of *Cenchrus glaucus* cv. CO 1

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**SUMMARY**

*Cenchrus* is an apomicitic grass species, established from both seed and rooted slips. The freshly harvested *Cenchrus* fluffs without any seed treatment did not germinate due to the inhibitors present in the husk. The caryopses extracted from the fluffs readily germinate with low percentage (62%). When the caryopses were subjected to different pre sowing seed treatments for the duration of 16h, the caryopses soaked in $CuSO_4$ at 50 or 25ppm and ascorbic acid @ 25 ppm registered higher germination percentage (80%) compared to other treatments.

**Key words :** *Cenchrus glaucus*, Dormancy, Caryopses

Seed dormancy is the natural phenomenon for the survival of grasses in their undisturbed ecosystem. The seed dormancy in forage grasses prevents successful establishment of a new pastures. *Cenchrus* is an apomicitic grass species, established from both seed and rooted slips.

In *Cenchrus glaucus* also seed germination itself is a problem and the freshly harvested fluffs without any treatment did not germinate. Lahiri and Kharabanda (1963) reported that fresh fluffs of both *Cenchrus* and *Lasirus* possessed inhibitors in the husk which prevents germination of fresh fluffs. But Butler (1985) opined that dormancy mechanisms of *C. ciliaris* lies within the caryopses rather than in the associated structures of fluff. More over handling with the fluffs during sowing or transport poses problem due its bulkiness and empty glumes. The results of tetrazolium test also revealed that *C. glaucus* seeds possessed more than 90 per cent viability when it was fresh. Hence, an attempt was made with true seeds or caryopses given with different dormancy breaking treatments on the germination potential of *Cenchrus glaucus* seeds.

## MATERIALS AND METHODS

The fluffs were treated with commercial grade sulphuric acid @ 500 ml $kg^{-1}$ of seeds for 15min. and after repeated washings the caryopses were extracted with the help of closely knitted wire mesh sieve. After thorough washing, the seeds were initially dried under fan and subsequently sun dried to bring the seed moisture content to around 10 per cent. Then the seeds were cleaned by blowing the seeds in the air blower at 0.55 mg pressure for 15 min and used for the study. Seeds were graded with BSS 24 x 24 wire mesh sieve. The following treatments were imposed with a soaking period of 16 h.

$T_0$ - Control , $T_1$ - Water soaking, $T_2$ - 1% $KNO_3$, $T_3$-2% $KNO_3$, $T_4$ - 25 ppm $CuSO_4$, $T_5$ - 50 ppm $CuSO_4$, $T_6$ - 25 ppm ascorbic acid, $T_7$ - 50 ppm ascorbic acid, $T_8$- 100 ppm $GA_3$, $T_9$ - 200 ppm $GA_3$, $T_{10}$ - 500 ppm $GA_3$ The experiment was conducted with a CRD design with four replications. The seeds were subjected to germination test on top of the paper media at the temperature of $25^0$C and 90 ± 5% RH with the germination period of 14 days (ISTA, 1990). The seeds were evaluated for root and shoot length, dry matter production and vigour index values (Abdul- Baki and Anderson, 1973). Data were analysed following Snedecor and Cochran (1967).

## RESULTS AND DISCUSSION

Germination of caryopses extracted from the fluffs without any seed treatment was 62 per cent against nil germination of intact fluffs implies that the spikelet structures surrounding the true seed possessed more inhibitory effect than the internal structures. The seeds soaked in water recorded no significant improvement in germination indicating the absence of water soluble inhibitors in the caryopses (Table 1).

Among the pre sowing treatments, caryopses soaked in $CuSO_4$ at 50 ppm and ascorbic acid at 25 ppm registered the highest germination of 80 per cent. This was followed by soaking seeds in $CuSO_4$ at 25 ppm solution (79%). Similar results were noticed with the true seeds of different ecotypes of *Cenchrus ciliaris* (Pandeya and Pathak, 1978) with ascorbic acid, copper sulphate and streptomycin. Delatorre and Barros (1996) reported that

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