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OVERCOMING ABIOTIC AND BIOTIC STRESS CONSTRAINTS IN PLANT SCIENCE

ONLINE

SCREENING OF POPCORN INBRED LINES FOR DROUGHT TOLERANCE INDUCED BY POLYETHYLENE GLYCOL IN GERMINATION STAGE

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RESUMO

During germination, water exerts an indispensable role as it is able to reactivate the metabolism of seeds. Accordingly, under water deficiency, germination rates will be reduced. Under these circumstances, the present work aims to evaluate germination behaviours of 28 popcorn inbred lines along with a tolerant and a sensitive control under water deficiency. To evaluate germination rate under drought stress, four replications of 50 seeds per treatment were used, distributed in rolls of germitest paper moistened in the proportion of 2.5 times the weight of the dry paper with the solution of PEG 6000 with -0.3 MPa of osmotic potential. For the control environment, the germitest paper was moistened with distilled water only. The rolls were stored in BOD set at 25 °C with 8 hours of photoperiod per day and maintained in these conditions for seven days. The experiment was conducted in a completely randomized design within a factorial scheme 30 x 2, whereas the first factor represents the quantity of genotypes evaluated and the second one represents the quantity of environments, with and without stress. During germination rate count, performed on the seventh day, the number of normal seedlings was evaluated in each repetition. At the end of the experiment, the ANOVA and the Skott-Knott tests for grouping of averages were performed. Thereby, two strains were highlighted for the breeding program: one with tolerance-related behavior, presenting the highest average among the strains and great germination stability, with equal behaviors in the control and stress environment, despite not presenting the greater germination stability; the second strain, with sensitivity behavior, was highlighted by the worst average and the great reduction in germination performance, with very different behaviors in the control and stress environment

PALAVRAS-CHAVE: Water stresses, PEG, popcorn

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