



# III INTERNATIONAL SYMPOSIUM ON GENETICS AND PLANT BREEDING

OVERCOMING ABIOTIC AND BIOTIC STRESS CONSTRAINTS IN PLANT SCIENCE

ONLINE

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

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### RESUMO

Roots are responsible for water and nutrients absorption, exerting a fundamental role for the development of the plant. With low water environments, the first organs to be affected are the roots. Thus, the present work aims to evaluate the root growth behaviours of 28 popcorn inbred lines along with a tolerant and a sensitive control under water deficiency. To evaluate root growth under drought stress, four replications of 20 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 six 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 and the second one the quantity of environments - with and without stress. The measurement of root growth occurred using the WinRHIZO software. At the end of the experiment, the ANOVA and the Skott-Knott tests for grouping of averages were performed. Thereby, two inbred lines 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 inbred lines, 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:** Drought stress, PEG, Popcorn

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