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Determining a Suitable Time and Temperature Combination for Electricial Conductivity Test in Sorghum

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Abstract : This study was conducted to determine a suitable time and temperature combination for the electrical conductivity test to be used in sorghum seeds. Fifty seeds known initial seed moisture content and weight of fresh and dead seeds (105°C for 6h) of seven sorghum cultivars were used as material. The electrical conductivities of soak water were measured using EC meter at 20, 25 and 30°C for 4, 8, 12 and 24 h using 50 mL deionized water. The experimental design was three factors factorial (7 × 3 × 4) arranged in a completely randomized design; with four replications and 50 seeds per replicate. The results showed that increased time and temperature caused a remarkable increase in EC values of all of the cultivars. Temperature significantly affected the electrical conductivity values and the best results were obtained at 25°C. The cultivars having the lowest germination percentage gave the highest electrical conductivity value. Dead seeds always gave higher electrical conductivity at 25°C for all periods. It was concluded that the temperature of 25°C and higher period than 12 h was the optimum combination for the electrical conductivity test in sorghum.

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