"Optimization of Several Sterilization Methods on Sorghum Seed Explants (Sorghum bicolor L.) In Vitro"

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ABSTRACT

One type of cereal crop, sorghum, is a zero-waste crop, meaning that all parts of the plant can be utilized. However, sorghum in Indonesia is overshadowed by higher-value crops such as green beans, upland rice, or cassava. In this context, efforts can be made to develop sorghum through tissue culture, particularly to produce high-quality seed varieties preferred by farmers. The objective of this study is to analyze the appropriate sterilization method and the effect of sterilization methods on the viability of sorghum seed explants in vitro. This study used a Complete Randomized Design (CRD) Factorial with two factors: the first factor used the treatment of Copper Oxide Soaking Time, and the second factor used the Disinfectant Treatment. The Copper Oxide Soaking Time factor consisted of two levels: 40 minutes and 60 minutes. The disinfectant factor had three levels: 70% alcohol + 2 g copper oxide, 70% alcohol + 25% chlorine + 2 g copper oxide, and 70% alcohol + 25% Clorox + 3% NaOCl + 2 g copper oxide. The research results indicate that the combination of 70% alcohol + 25% chlorine + 3% NaOCl + 2 g copper oxide is effective in reducing contamination. The use of chlorine and NaOCl helps reduce contamination levels to 6.67%.

Keywords: Sorghum, Tissue Culture, Sterilization