

Effect of TDZ and Coconut Water on The Multiplication of Red Potato Shoots In Vitro

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ABSTRACT

Red potato has the potential for high production compared to the granola variety, but is constrained by expensive seeds and poor quality seedlings. These problems can be overcome by propagating tissue culture techniques by adding growth regulators for the final result of the formation of plants with superior characters and free from viruses. Therefore, it is necessary to conduct research to determine the effect of the combination of TDZ and coconut water on the multiplication of red potato shoots. The research was conducted at Jember State Polytechnic in June 2025-September 2025. The research design used a factorial Completely Randomized Design (CRD) with 2 factors, namely ZPT TDZ and coconut water, each factor having 3 levels so that 9 treatment combinations were obtained. The first factor is TDZ (concentration of 1.5 mg/l, 2.5 mg/l, 3.5 mg/l) and the second factor is coconut water (concentration of 50 ml/l, 100 ml/l, 150 ml/l) with observation variables of bud emergence, number of buds, shoot height (cm), number of leaves, root length (cm), number of roots. The results showed that the interaction of TDZ 1.5 mg/l and coconut water 100 ml/l gave significantly different results and made the optimum concentration on shoot height. The single treatment of TDZ 1.5 mg/l is the optimum concentration in increasing the number of leaves with an average result of 10.43, and coconut water 100 ml/l gives an increase in the number of shoots and makes the optimum concentration by producing an average of 2.78. Meanwhile, shoot emergence time, root length, and number of roots had no effect on all treatments. Overall, the interaction of TDZ and coconut water gave a positive effect in the multiplication of red potato shoots, especially in the growth of shoots and leaves.

Keywords: *coconut water, multiplication, red potato, TDZ.*