

ABSTRACT

The increase of ornament plants always has a segmented market and unique economical value. Leatherleaf fern (*Rumohra adiantiformis*) was one of the examples of ornamental plants and was widely used in the floristry industry. Plant tissue culture has been an advance and conscientious alternative approach for plant cultivation to fulfill the commercial and market needs with a very mindful and continuous process. Throughout the continuous process, this project experiment aimed to improve the rhizome multiplication of *Rumohra adiantiformis* in a half-strength MS medium with the supplement addition of cytokinin plant growth regulators (PGR) with different concentrations range (BAP 0.5, 1, 2, 4 mg/L, KIN 0.5, 1, 2, 4 mg/L, and TDZ 0.0123, 0.025, 0.05, 0.1 mg/L) by practicing tissue culture under several parameters. The effectiveness of plant growth, when given basal media of different strengths of MS medium supplemented with PGR, was to be investigated. The parameters for data collection analysis include the height of explants, number of newly formed shoots and roots, rhizomes, and root length parameters. Each treatment was assessed with One-Way ANOVA and the comparison between MS medium was assessed using Independent t-Test. Cytokinin regulators, 1 mg/L KIN showed the most significant effect as a plant growth regulator. While the half-strength MS medium showed the most effective basal media and most suitable media to promote rhizome multiplication.

Keywords: *plant tissue culture, in vitro micropropagation, leatherleaf fern, rhizome multiplication, cytokinin plant growth regulators, half-strength MS*