

ABSTRACT

Nazza, Y. 2013. **Callus Induction of Pennywort (*Centella asiatica*) on MS Medium with The Addition 2,4-D Plant Growth Regulator Combined with Coconut Water**. Thesis. Department of Biology, Faculty of Science and Technology. Thesis Supervisor: Dr. Evika Password Savitri, M.P. Supervisor Religion: Ach. Nashichuddin, M.A.

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Pennywort (*C. asiatica*), included to the family Apiaceae (Umbelliferae) and contains asiaticosides, asiatic acid, madecassoside, madecassic acid and others. The secondary metabolites of Pennywort efficacious for memory, burns wound, hypertension, neurological diseases, asthma, bronchitis and urethritis. High needs of Pennywort secondary metabolites can be obtained through callus culture.

This study aims to determine the concentration of a combination of 2,4-D PGRs with coconut water on the most effective MS medium to induce callus from leaf explants of Pennywort (*C. asiatica*). This study was designed using a Completely Randomized Design with two factors. The first is the concentration of 2,4-D (0, 1, 2 and 3 mg/L), the second is the concentration of coconut water (10, 15 and 20 %). Parameters observed: emergence of callus explants (day), the percentage of callus (%), callus fresh weight (gr) and callus morphology (color and texture of the callus). Quantitative data were tested by ANOVA Two-Way, while the qualitative data were presented descriptively. Observations are made daily, two weeks and four weeks after planting (DAP).

ANOVA test results showed treatment of 2,4-D effect on the appearance of callus explants, callus percentage and fresh weight. Coconut water treatment effect on callus fresh weight. Interaction between 2,4-D and coconut water affect the callus percentage and fresh weight. The treatment combination of 1 mg/L 2,4-D + 10% coconut water is the most efficient combination to obtain the best callus fresh weight (0,81 gr) and percentage 78,25%. Morphology (color and texture callus) in this medium showed callus yellowish and compact texture. Callus morphology such as these can be used in the production of secondary metabolites.