

## ABSTRACT

Fajroti, Nuris. 2012. The Effects of Explants Type and Concentration 2,4-D (2,4-*Dichlorophenoxyacetic Acid*) to Growth and Secondary Metabolites Content (Stigmasterol dan Sitosterol) of Purwoceng (*Pimpinella alpina* Molk) Callus in MS Media. Thesis, Departement of Biology, Faculty of Sciences and Technology, The State Islamic University of Maulana Malik Ibrahim Malang. Advisor I: Dr. Evika Sandi Savitri M.P. Advisor II: Dr. H. Ahmad Barizi, M.A.

Keywords: 2,4-D (2,4-*Dichlorophenoxyacetic Acid*), Explants, Callus, *Pimpinella alpina* Molk, Sitosterol dan Stigmasterol.

Purwoceng (*Pimpinella alpina* Molk.) is one of Indonesian medical plants. It grows endemic in a plateau like in Ranu Pani, the area in Semeru mountain. Purwoceng is herbal plants whosh root has in function aphrodisiac, diuretic and tonic. The imbalance between the growth and the exploitation of this plant, meke it included in Appendix I (endangered) so the conservation of it will be very crucial. One of method of the conservation and secondary metabolites production of this plant is by plant tissue culture. This method is considered as one way to induct the callus and the secondary metabolites. Plant grows regulator auksin (2,4-D) and eksplan type used for callus induction and increase levels of secondary metabolites.

This objective of the research are to find out the effects of explants type and 2,4-D concentration toward the growth and secondary metabolites content (stigmasterol dan sitosterol) of Purwoceng callus. This research is experimental reseach which uses completely randomized design (RAL) with factorial experimental model which consict two factors. The first factor is explants type (E) that has young leaf and petiole. The second factor is ZPT 2,4-D (K) consentration, they are 0 mg/L 2 mg/L, 4 mg/L and 6 mg/L. To figure out the stigmasterol and siosterol content in Purwoceng callus is done by separating Liquid chromatography (LC). The data are analysis by analysis of variant (ANOVA). If the analysis result is significant, so the researcher conduct further tests with DMRT 5% range.

The results of this research shows that the explants type and 2,4-D concentration have diffirent influence to the growth of callus that is recognized by day of callus induction, color and callus texture. The highest weight of thr fresh callus in leaf is 2,4-D concentration 4 mg/L with 0,216 gram in average weight, while the highest weight of thr fresh callus in petiole 2,4-D concentration 6 mg/L with 0,143 gram in average weight. The highest stigmasterol content in leaf explant with 2,4-D concentration 6 mg/L with 1408,699 ppm in average content, while the highest sitosterol content is petiole explant in 2,4-D concentration with 2615,614 ppm in average content.