ABSTRACT

Shabrina Salwa Violalita. 24020121120031. **Growth Enhancement of Mangrove Seedling Growth *(Rhizophora mucronata* Lam*)* with Coconut Water Soaking and Plasma Radiation.** Department of Biology, Faculty of Science and Mathematics, Diponegoro University, Semarang, under the guidance of Prof. Dr. Dra. Erma Prihastanti, M.Si. and Prof. Dr. Dra.Endah Dwi Hastuti, M.Si.

The mangrove seedling process takes about 3-4 months because it undergoes a long growth process during the seedling phase. The mangrove seedling process takes about 3-4 months because it undergoes a long growth process during the seedling phase. Plasma radiation can supply the nitrogen needs of plants thus increasing the growth rate. However, plasma radiation has the risk of disrupting plant growth when exposed to high radiation. Coconut water can be used to prevent these problems through its phytohormone and antioxidant content. This study aims to assess the effect of coconut water and plasma radiation, as well as the interaction of the two in affecting the growth of mangrove seedlings *(Rhizophora mucronata* Lam*)*. This research method used a factorial completely randomized design (CRD) (4×3) consisting of 12 treatments and 5 replicates. Factor I is the duration of coconut water immersion (well water immersion, 2 hours coconut water immersion, 4 hours coconut water immersion, and 6 hours coconut water immersion). Factor II is the duration of plasma radiation (no radiation, 45 minutes plasma radiation, and 60 minutes plasma radiation). The parameters of this study include the number of roots, root length, increase in height, increase in wet weight, survival of seeds, and number of leaves. Data were analyzed using ANOVA and continued with DMRT test with 95% confidence level if there is a real difference. The results showed that the treatment of coconut water immersion and plasma radiation had an effect on the number of roots, root length, height increase, and wet weight increase. However, the survival rate of seeds and the number of leaves had no significant effect. Both factors also showed an interaction on the number and length of roots. The best combination for the number and length of roots was found in the treatment of 2 hours of coconut water immersion with 60 minutes of plasma radiation.

Keywords: *Rhizophora mucronata* Lam., *coconut water, plasma radiation*