

## ABSTRACT

Rita Wahyuningtiyas. 24020117120043. Jamaican Cherry (*Muntingia calabura* L.) Leaf Extract Effect on the Germination and Growth of Spiny Amaranth (*Amaranthus spinosus* L.). Laboratory of Plant Structure and Function Biology, Department Biology, Faculty of Science and Mathematics, Diponegoro University, Semarang, with Guidance by Dr. Sri Darmanti, M.Si and Prof. Dr. Dra. Endah Dwi Hastuti, M.Si.

Spiny amaranth is a nuisance weed that usually grows on agricultural land and can decrease the yields production. Jamaican cherry leaves contain allelochemical compounds such as polyphenols, flavonoids, tannins, alkaloids, and saponins which have the potential as bioherbicides has potential as a bioherbicide that inhibits or kills weeds. The aim of this research is to determine the most effective concentration of jamaican cherry leaf extract for inhibiting the germination and growth of spiny amaranth. This experiment used a completely randomized design (CRD) with one factor in the form of extract concentration, and four treatment levels: 0%, 2%, 4%, and 6% for germination trials and 0%, 10%, 20%, and 30% for growth trials. Each treatment level had five repetitions. Quantitative data were analyzed using the ANOVA (Analysis of Variance) test and continued using the DMRT (Duncan's Multiple Range Test) at a confidence level of 95%. The result of the research showed that the germination percentage, germination index, length of the sprouts' roots and stems, plant height, number of leaves, fresh weight, and dried weight of spiny amaranth decreased by increasing concentration of jamaican cherry leaf. The higher concentration of cherry leaf extract increased the mean germination time (MGT) and flowering period for spiny amaranth. The content of carotenoids, chlorophyll a, and chlorophyll b was found to increased when cherry leaf extract was given at concentrations of 10% and 20%, whereas it decreased when given at a concentration of 30%. The optimum concentration of jamaican cherry leaf extract to inhibits spiny amaranth is 6% for germination and 30% for growth parameters.

Keywords: *allelochemicals, jamaican cherry, spiny amaranth, inhibition*