ABSTRACT

Firmansyah. 24020119120027. **Effect of Frequency of Abscisic Acid (ABA) Application on Stomata Opening and Growth of Mustard Greens (*Brassica juncea* L.) under Drought Stress Conditions**. Department of Biology, Faculty of Science and Mathematics, under the guidance of Endang Saptiningsih and Sri Widodo Agung Suedy.

Mustard greens are annual herbaceous plants that requires water as an important factor in its growth, but global warming causes prolonged drought resulting in water scarcity. Abscisic acid (ABA) helps plants cope with drought, therefore they can maintain their growth. This research aims to examine the effect of the frequency of ABA application on stomata opening and growth of mustard greens under drought stress conditions. The research was carried out in the greenhouse experimentally using a single factor Completely Randomized Design (CRD), namely the frequency of ABA application which consisted of four treatments: field capacity without ABA application (KL(-ABA)), drought without ABA application (K(-ABA)), drought with ABA application once every day (K(+ABA)P1), and drought with ABA application once every three days (K(+ABA)P3). The parameters observed were stomata opening, number and area of leaves, number of roots, and dry weight. Data were analyzed using a One Way ANOVA and LSD follow-up test at a significance level of 5%. The results showed that K(+ABA)P1 and K(+ABA)P3 treatments were able to reduce stomata opening. K(+ABA)P3 treatment increased growth of mustard greens in number and area of leaves, as well as dry weight of roots, stems, petioles and leaves compared to K(+ABA)P1 treatment. Number of roots did not show a significant difference between K(+ABA)P1 and K(+ABA)P3 treatments. Frequency of applicating ABA once every three days is the most effective treatment to maintain growth of mustard greens under drought stress conditions.

Keywords: ABA, stomata, growth, drought