

## ABSTRACT

Shulcha Asmahan Askho. 24020120120026. **Anatomical Responses of Leaves and Roots of *Rhizophora stylosa* Griff. on Variations in Salinity and Inundation.** Biology Laboratory of Plant Structure and Function, Department of Biology, Faculty of Science and Mathematics, Diponegoro University, under the supervision of Endah Dwi Hastuti and Erma Prihastanti.

*R. stylosa* Griff. has the ability to adapt under salinity and waterlogging stress that can be seen from its anatomical structure. This study aims to determine the anatomical response of the leaves and roots of *R. stylosa* Griff. to variations in salinity and inundation. This research was carried out using experimental methods with a  $3 \times 3$  factorial completely randomized design (CRD) consisting of variations in salinity of 15 ppt, 25 ppt, 35 ppt and variations in inundation height of 10 cm, 15 cm, 20 cm, each with three replications. The seeds were planted in buckets, acclimatized for a week, then flooded with salt solution according to treatment for 3 months. Leaf and root samples were observed and measured. The research parameters were leaf cuticle thickness, leaf hypodermis thickness, mesophyll thickness (palisade and sponge), leaf hypodermis to mesophyll ratio, root epidermis thickness, root hypodermis thickness, root hypodermis to root cortex thickness ratio, and aerenchyma area. Data were analysed by ANOVA, followed by DMRT. The result showed that there was an influence of salinity, inundation, and the interaction of both on leaf and root anatomy. There was a tendency to increase the thickness of leaf and root hypodermis tissue, mesophyll tissue, and the ratio of leaf hypodermis to mesophyll tissue thickness up to a salinity of 25 ppt and decrease at a salinity of 35 ppt, as well as a decrease in root epidermis thickness and an increase in aerenchyma area with increasing salinity and waterlogging.

**Keywords:** *anatomical adaptation, Rhizophora stylosa Griff., salinity, inundation*