PUSPITASARI KURNIAWATI. The Influence of Mycorrhizal Inoculum and NPK Fertilization toward The Growing of Longkida (*Nauclea orientalis* L.) in Water-Log and Non-Water-Log Conditions. Supervised by IRDIKA MANSUR.

Mining activities cause many problems, one of them is a puddle on former mining land. It is necessary to do some research to select what species of plant that can survive in a puddle. Longkida (*Nauclea orientalis* L.) is a species that can live in the swamp, so it is potentially used to plant in water-log area. However, knowledge about cultivation techniques and the growth of this species in water-log or not-waterlogged area is not available yet. In this research, Arbuskular Mycorrhizal Fungi (AMF) and NPK fertilizer are used to increase the growth of longkida seedling in water-log or not water-log area.

This research uses an experiment with a Completely Randomized Design (CRD) with three treatments: control, 5 gram mycorrhizal inoculums (mycofer of *gigaspora* and *margarita*) and 5 gram NPK fertilizer. Each treatment had 4 replicates of 3 units of seedling per replicate on water-logged and non-waterlogged conditions. The parameters measured were high, diameter, number of leaves, figh weight of plants, dry weight of plants, root shoot ratio, plant water content, and root colonization by AMF.

The results showed that applying mycorrhizal inoculums in water-log conditions have measured plant height and diameter growth, respectively amout 25.25% and 17.24% of control, but mycorrhizal inoculums did not a noticeable effect on the number of leaves, figh weight plant and dry weight. In not water-log conditions, mycorrhizal inoculums did not significantly affect height growth, diameter and number of leaves, cause an increase for total fresh weight of 143.33%, and total dry weight of 173.68% of control. NPK fertilizer dose 5 gram did not significantly affect to longkida growth in water-log or non-water-log conditions. Mycorrhizal inoculum effectively used for growth longkida on water-log and non-water-log.

Keywords: *Nauclea orientalis*, water-log, mycorrhizal, NPK