

SUMMARY

Arbuscular mycorrhizal fungi (AMF) belong Glomeromycota phylum. The AMF consists an internal phase inside the root and an external phase or extraradical mycelium (ERM) phase, which can form an extensive network within the soil. The AMF and plant root can build symbiosis benefiting each other. This symbiosis can increase plant growth and is widely use in agriculture sector and others. The symbiosis of AMF and plant root can be influenced by organic fertilizer. Tofu organic fertilizer in liquid form provided organic sources for increasing plant growth and symbiotic between AMF and plant root. The objectives in this research were to determine the combination effects of AMF and tofu organic fertilizer for tomato growth and determine the optimum combination of AMF dose and tofu organic fertilizer concentration for tomato growth in contaminated media by batik effluents.

The research was conducted experimentally by completely randomized design (CRD). The treatment combinations are AMF doses (0 g, 15 g, and 30 g) and tofu organic fertilizer concentrations (0%, 10%, and 100%). Consisting 10 combination treatments, 3 replications/treatment, those are 30 treatment units. Independent variable was combination of AMF dose and organic fertilizer concentration. Dependent variable was plant growth.

The main parameters were plant height, root length, wet weight and leaves number. The supporting parameter was AMF infection level. The main data was analyzed by analysis of variance (ANOVA) with an error standard 5% and continued by the Duncan's posy hoc test. The results revealed that a combination of AMF and tofu organic fertilizer significantly affects plant height, root length, and wet weight and also had a positive effect for leaves number of tomato plant. The optimum combination of doses and concentrations was AMF 15 g and tofu organic fertilizer 10%.

Keywords: *Arbuscular Mycorrhizal Fungi (AMF), tofu organic fertilizer, tomato plant, batik effluents*