ABSTRACT

EFFECT OF INOCULATION TIME AND SPORE NUMBER OF ARBUSCULAR MYCORRHIZAL FUNGI ON GROWTH OF OIL PALM SEEDLINGS (Elaeis guineensis Jacq.)

By

Mukhtar Dewan Prasetyo

Inoculation of arbuscular mycorrhizal fungi (AMF) at seedling stage of oil palm will improve the quality of the seedlings. The presence of AMF inside oil palm seedlings root will enhance the seedlings growth at nursery stage and later in the field. However, the information on the right time to inoculation the germinated seed of oil palm and how much the spore number of AMF to be used are limited. The presence study therefore aimed 1) to determine the exact time of AMF inoculation, 2) to determine the exact dose of AMF spore, 3) to determine whether the exact dose of AMF spore to be used is depend on the inoculation time, and 4) to determine the exact dose of AMF spore for every inoculation time.

This experiment was conducted from October 2011 to June 2012 at plastic house and Laboratory of Estate Crop, Faculty of Agriculture, University of Lampung. A two factors experiment arranged in a randomized block design was used. The first factor was four level of inoculation time (0, 1, 2, and 3 months old the seedlings) and the second factor was four level of AMF spore number (0, 200, 400, and 600 spores). The AMF Inoculum used comprising *Glomus* sp.1, *Glomus* sp.2, *Glomus* sp.3, *Entrosphospora* sp, and *Gigaspora* sp. The data optained were subjected to Barlett test to evaluate the homogeneity of variances among the treatments and Tukey test to check the additivity of the data. The least significant difference (LSD) test in α level 0,05 was used for mean separation.

The results obtained showed that AMF inoculation at one month old seedlings had the better growth of the seedlings through the increment of seedlings height, shoot fresh weight, and shoot dry weight, while 400 spore number gave the better seedling growth through the increment of seedling height, number of leaves, shoot dry weight, root dry weight, and percentage of root infection. Number of spore to be used was determined by the time of inoculation only detected at plant height and leaf greenness level. Therefore, the best combination of spore number and time of inoculation could not be determined in this study.

Key words : time of inoculation, spore number of arbuscular mycorrhizal fungi, oil palm seedling.