

**PENGARUH INOKULASI FUNGI MIKORIZA ARBUSKULA INDIGENOUS
Bambusa sp, *Cichorium intybus L*, *Pinus merkusii* TERHADAP
PERTUMBUHAN, PRODUKTIVITAS DAN KANDUNGAN
NUTRIEN HIJAUAN *Cichorium intybus L***

INTISARI

Muhammad Husein
18/437404/PPT/01039

Penelitian ini bertujuan untuk mengetahui pengaruh inokulasi fungi mikoriza arbuskula terhadap pertumbuhan, produktivitas (biomassa segar tajuk), biomassa akar, efektivitas inokulasi FMA dan kandungan nutrisi (BK, BO, SK) hijauan pakan chikori (*Cichorium intybus L.*). Penelitian dilakukan di lahan Hijauan Makanan Ternak Fakultas Peternakan UGM selama 8 bulan. Penelitian dilakukan dua tahap. Tahap pertama, isolasi dan perbanyakan spora melalui kultur *trapping* menggunakan 3 jenis rhizosfer berbeda yaitu R1 : rhizosfer bambu (*Bambusa sp*); R2 : rhizosfer chikori (*Cichorium intybus L.*); R3 : rhizosfer pinus (*Pinus merkusii*) dengan tanaman inang yaitu I : sorgum, masing-masing diulang 4 kali sehingga ada 12 unit percobaan. Tahap kedua, uji efektivitas pada chikori terdiri 4 perlakuan M0 : tanpa FMA; M1 : 300 spora/30 g propagul FMA *Bambusa sp.*; M2 : 300 spora/40 g propagul FMA *Cichorium intybus L.*; M3 : 300 spora/76 g propagul FMA *Pinus merkusii*, dengan 3 kali ulangan. Parameter yang diukur pada tahap pertama yaitu kepadatan spora dan keragaman mikoriza, data dianalisis secara deskriptif. Tahap kedua pertumbuhan tanaman (jumlah daun, lebar daun dan tinggi tanaman), produktivitas (bobot segar tajuk, biomassa akar), kandungan nutrisi (BK, BO, SK) dan efektivitas inokulasi FMA menggunakan metode rancangan acak lengkap pola searah. Apabila terdapat perbedaan maka dilakukan uji *Duncan's new Multiple Range Test* (DMRT). Hasil perbanyakan dengan media zeolit menggunakan tanaman inang sorgum mampu meningkatkan kepadatan dan keragaman spora FMA melalui kultur *trapping*. Hasil analisis statistik bahwa perlakuan inokulasi FMA memberikan pengaruh nyata $P < 0,05$ terhadap jumlah daun (helai), lebar daun (cm), biomassa segar tajuk (g/tanaman), biomassa akar (g/tanaman) dan kadar bahan kering (%), tetapi tidak berpengaruh $P > 0,05$ terhadap tinggi tanaman (cm), kadar bahan organik (%) dan kadar serat kasar (%). Sedangkan inokulasi FMA memberikan respon positif terhadap efektivitas inokulasi FMA (%), tetapi sumber FMA tidak memberikan perbedaan yang nyata $P > 0,05$. Perlakuan (M1) memberikan hasil tertinggi pada jumlah daun (helai), lebar daun (cm), biomassa segar tajuk (g/tanaman) dan efektivitas inokulasi FMA (%). Biomassa akar dan kadar bahan kering (%) tertinggi diperoleh pada perlakuan (M2). Berdasarkan hasil penelitian dapat disimpulkan seiring bertambahnya kepadatan dan keragaman FMA pada propagul meningkatkan pertumbuhan jumlah daun, lebar daun, biomassa segar tajuk dan biomassa akar serta meningkatkan kadar bahan kering, tetapi tidak pada tinggi tanaman, kadar bahan organik dan serat kasar pada kondisi ketersediaan air yang terbatas.

Kata kunci: Jamur Mikoriza Arbuskular (FMA), Kultur *Trapping*, Pertumbuhan, Produksi, Kandungan nutrisi *Cichorium intybus L*

THE EFFECT OF ARBUSCULAR MYCORRHIZAL FUNGI INOCULATION
INDIGENOUS *Bambusa* sp, *Cichorium intybus* L, *Pinus merkusii* ON
GROWTH, PRODUCTIVITY, EFFECTIVENESS OF
INOCULATION AND NUTRIENT CONTENT OF
FORAGE *Cichorium intybus* L

ABSTRACT

Muhammad Husein
18/437404/PPT/01039

This study aims to determine the effect of arbuscular mycorrhizal fungi inoculation on growth, productivity (fresh shoot biomass), root biomass, the effectiveness of inoculation, and nutrient content (DM, OM, CF) of forage chicory (*Cichorium intybus* L.). The research was conducted in the Forage area of the Faculty of Animal Science UGM for 8 months. The research was carried out in two stages. The first stage was isolation and spore propagation through trapping culture using 3 different types of the rhizosphere, namely R1 : bamboo rhizosphere (*Bambusa* sp); R2 : chicory rhizosphere (*Cichorium intybus* L.); R3 : pine rhizosphere (*Pinus merkusii*) with host plants, namely I : sorghum, each repeated 4 times so that there are 12 experimental units. The second stage of the effectiveness test consisted of 4 treatments M0 : without AMF; M1 : 300 spores/30 g propagules of AMF *Bambusa* sp.; M2 : 300 spores/40 g propagules of AMF *Cichorium intybus* L.; M3 : 300 spores/76 g propagules of AMF *Pinus merkusii*, with 3 replications. Parameters measured in stage one, spore density and mycorrhizal diversity, were analyzed descriptively. Stage two plant growth (number of leaves, leaf width, and plant height), productivity (shoot fresh weight), root biomass, nutrient content (DM, OM, CF), and effectiveness of AMF inoculation using a unidirectional completely randomized design method. If there are differences, then Duncan's New Multiple Range Test (DMRT) is carried out. The propagation results using zeolite media using the host plant sorghum were able to increase the density and diversity of AMF spores through trapping culture. The results of statistical analysis showed that AMF inoculation had a significant effect on $P < 0.05$ on the number of leaves (strands), leaf width (cm), fresh shoot biomass (g/plant), root biomass (g/plant), and dry matter content (%), but did not affect $P > 0.05$ on plant height (cm), organic matter content (%) and crude fiber content (%). Meanwhile, FMA inoculation gave a positive response to the effectiveness of AMF inoculation (%), but the source of FMA did not give a significant difference, $P > 0.05$. Treatment (M1) 300 spores/30 g propagules of AMF *Bambusa* sp gave the highest yields on leaf number (blade), leaf width (cm), and shoot fresh biomass (g/plant). Treatment (M2) of 300 spores/40 g propagules of AMF *Cichorium intybus* L. gave the highest yields on root biomass, dry matter content (%), and crude fiber content (%) chicory. Based on the results of the study, it can be concluded that the increasing density and diversity of AMF in propagules increases the growth of leaf number, leaf width, fresh shoot biomass, and root biomass and increases dry matter content, but not plant height, organic matter content and crude fiber in conditions of water availability limited.

Keywords: Arbuscular Mycorrhizal Fungi (AMF), Trapping culture, Growth, Production, Nutrient content *Cichorium intybus* L.