

RINGKASAN

Aktivitas pertambangan memberi dampak negatif terhadap tanah pada lahan pertambangan. Kualitas tanah mengalami penurunan akibat sifat fisika dan kimia tanah rusak. Tanah menjadi keras, padat, dan kesulitan untuk menyimpan air. Tanah pada lahan pertambangan umumnya mengandung sedikit unsur hara. Hal tersebut menyebabkan terganggunya pertumbuhan tanaman. Pemberian dosis FMA pada tanah bekas tambang batu bara dengan penambahan amelioran kompos dapat menjadi salah satu strategi yang bisa digunakan. Kompos berfungsi sebagai sumber unsur hara yang bebas dari bahan kimia. Fungi Mikoriza Arbuskula (FMA) berasosiasi dengan akar tanaman dan membantu proses penyerapan unsur fosfat (P) oleh tanaman. Salah satu tanaman lokal yang toleran terhadap media tanah yang buruk sehingga dapat ditanam pada tanah bekas tambang adalah Sengon (*Paraserianthes falcataria*).

Penelitian ini dilakukan dengan metode eksperimen menggunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan meliputi Kontrol negatif (D1), Kontrol positif (D2), kompos 35 g + FMA 10 g (D3), kompos 35 g + FMA 15 g (D4), kompos 35 g + FMA 20 g (D5) dengan masing-masing perlakuan dilakukan 3 kali pengulangan. Variabel penelitian ini adalah pemberian dosis FMA dan penambahan amelioran kompos. Parameter pada penelitian ini meliputi pertambahan tinggi tanaman, pertambahan diameter batang tanaman, persen kolonisasi FMA, jumlah daun, dan berat kering akar tanaman. Data yang diperoleh dianalisis dengan Sidik Ragam dan dilanjutkan dengan uji Beda Nyata Jujur (BNJ) dengan taraf uji 5%.

Hasil penelitian menunjukkan pemberian dosis FMA dan penambahan amelioran kompos memberikan pengaruh dalam pertambahan tinggi tanaman, pertambahan diameter batang tanaman, persen kolonisasi FMA, jumlah daun, dan berat kering akar tanaman. Pemberian dosis FMA dan penambahan amelioran kompos mulai efektif pada perlakuan D4 (FMA 15 g + Kompos 35 g), serta perlakuan dengan hasil paling tinggi dihasilkan oleh perlakuan D5 (FMA 20 g + Kompos 35 g).

Kata kunci: *FMA, kompos, sengon, tanah tambang batu bara*

SUMMARY

Mining activities have a negative impact on the soil on mining areas. Soil quality has decreased due to the physical and chemical properties of the damaged soil. Soil becomes hard, dense, and difficult to store water. The soil in mining areas generally contains few nutrients. This causes disruption of plant growth. Dosage of AMF on ex-coal mine soil with the addition of ameliorant compost can be one strategy that can be used. Compost serves as a source of nutrients that are free from chemicals. Arbuscular mycorrhizal fungi (AMF) are associated with plant roots and help the process of absorption of phosphate (P) by plants. One of the local plants that is tolerant of poor soil media so that it can be planted on ex-mining soil is Sengon (*Paraserianthes falcataria*).

This research was conducted by experimental method using Completely Randomized Design (CRD) with 5 treatments including negative control (D1), positive control (D2), compost 35 g + AMF 10 g (D3), compost 35 g + AMF 15 g (D4), compost 35 g + AMF 20 g (D5) with each treatment carried out 3 times repetition. The variables of this study were the administration of AMF doses and the addition of compost ameliorants. The parameters in this study included increase in plant height, increase in plant stem diameter, percent of AMF colonization, number of leaves, and dry weight of plant roots. The data obtained were analyzed with the Diversity Fingerprint and continued with the Honestly Significant Difference (BNJ) test with a test level of 5%.

The results showed that the AMF dose and the addition of compost had an effect on increasing plant height, increasing plant stem diameter, percent AMF colonization, number of leaves, and dry weight of plant roots. The dose of AMF and effective addition of compost was started at treatment D4 (AMF 15 g + Compost 35 g), and the treatment with the highest yield was obtained by treatment D5 (FMA 20 g + Compost 35

Keywords: *AMF, Coal mine, Sengon*