

## Pengaruh Komposisi Media *Biochar* dan Dosis Pupuk NPK terhadap Pertumbuhan Semai Formis (*Acacia Auriculiformis* A. Cunn.)

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### Intisari

Pembangunan hutan dataran rendah di Jawa dengan menggunakan tanaman *Acacia auriculiformis* menjadi salah satu alternatif guna mengatasi kekurangan bahan baku kayu di Indonesia. Pembangunan hutan memerlukan suatu persemaian untuk menyuplai ketersediaan bibit. *Biochar* tongkol jagung hasil tumpangsari tanaman jati dengan jagung dimanfaatkan sebagai media saph. Penambahan *biochar* akan memperbaiki stabilitas agregat tanah, Kapasitas Tukar Kation (KTK) tanah, kandungan C-organik tanah serta retensi air dan hara. Penambahan nutrisi yang cukup dapat menunjang keberhasilan pertumbuhan semai. Penelitian ini dilakukan untuk mengetahui pengaruh interaksi komposisi *biochar* serta dosis pupuk NPK terhadap pertumbuhan tinggi, diameter, kandungan klorofil, dan biomassa semai *A. auriculiformis*.

Penelitian ini menggunakan semai *A.auriculiformis* berumur 1,5 bulan kemudian diberi perlakuan selama 4 bulan sehingga total berumur 5,5 bulan. Desain penelitian ini Rancangan Acak Lengkap (RAL) faktorial dengan 2 faktor yaitu 3 media saph (tanah : pupuk kandang : *biochar* 1:0:0; tanah : pupuk kandang : *biochar* 1:1:1; tanah : pupuk kandang : *biochar* 1:1:4) dan 3 dosis pupuk NPK (0 g/kontrol, 2 g, 4 g) dengan 5 ulangan untuk masing-masing perlakuan. Variabel yang diamati yaitu tinggi, diameter, kandungan klorofil dan biomassa semai. Hasil pengamatan dianalisis menggunakan *Analysis of Variance* (ANOVA) dan dilanjutkan dengan *Duncan's Multiple Range Test* (DMRT) jika terdapat perbedaan nyata pada taraf kepercayaan 95%.

Hasil penelitian menunjukkan bahwa media tanah : pupuk kandang : *biochar* 1:1:4 memberikan hasil terbaik pada pertumbuhan tinggi, diameter, dan biomassa atas semai sedangkan media tanah : pupuk kandang : *biochar* 1:0:0 memberikan hasil terbaik pada kandungan klorofil dan biomassa bawah semai. Perlakuan dosis pupuk NPK 0 g/kontrol memberikan hasil terbaik pada semua parameter yang diujikan. Perlakuan interaksi komposisi media dan dosis pupuk NPK yang terbaik adalah media tanah : pupuk kandang : *biochar* 1:0:0 dengan dosis pupuk NPK 0 g/kontrol pada biomassa atas dan bawah semai, interaksi tanah : pupuk kandang : *biochar* 1:1:4 dengan dosis pupuk NPK 0 g/kontrol pada diameter semai.

Kata kunci: Komposisi media, *biochar*, dosis pupuk NPK, *Acacia auriculiformis*

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## The Effect of *Biochar* Media Composition and NPK Fertilizer Dosage on the Growth of Formis Seedling (*Acacia Auriculiformis* A. Cunn.)

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### Abstract

Lowland forest development in Java using *Acacia auriculiformis* plants is an alternative to overcome the wood raw material shortages in Indonesia. Forest development requires a nursery to supply the availability of seedlings. The corncobs biochar, the results of intercropping of teak and corn, is used as a wean medium. The addition of biochar will fix the stability of soil aggregate, soil Cation Exchange Capacity (CEC), the content of C-organic soil, the water and nutrient retention. Moreover, the addition of sufficient nutrition can support the success of seedling growth. This research is conducted to determine know the interaction effect of soil media composition, manure, and biochar as well as NPK fertilizer dosage on the high growth, diameter, chlorophyll content and *A. auriculiformis* seedlings biomass.

This study used 1.5 month old *A.auriculiformis* seedlings and then treated for 4 months sototal age were 5.5 months. research was designed with a factorial Completely Randomized Design (CRD) with 3 wean media factors (soil : mature : biochar 1:0:0; soil : manure : biochar 1:1:1; soil : manure : biochar 1:1:4) and 3 dosages of NPK fertilizer (0 g /control, 2 g, 4 g) with 5 repetitions for each treatment. The variables observed were height, diameter, chlorophyll content and seedlings biomass. The results of the observations were analyzed using Analysis of Variance (ANOVA) and continued with Duncan's Multiple Range Test (DMRT) if there was a significant difference at the 95% trust level.

The results showed that soil medium: manure : biochar 1: 1: 4 provided the best results on the height growth, diameter and above-ground biomass of the seedlings, while soil medium : manure : biochar 1:0:0 provided the best results on the chlorophyll content and below-ground biomass of the seedlings. The dosage treatment of NPK fertilizer 0 g/control provided the best results in all parameters tested. The best interaction treatment of media composition and NPK fertilizer dosage were soil medium : manure : biochar 1:0:0 with NPK fertilizer dosage 0 g/control on the above- and below- ground biomass, soil interaction : manure : biochar 1:1:4 with NPK fertilizer dosage 0 g/control on the diameter of the seedlings.

**Keywords:** Media composition, biochar, NPK fertilizer dosage, *Acacia auriculiformis*

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