Pertumbuhan dan Kualitas Semai Trembesi (Samanea saman) dan Sengon Buto (Enterolobium cyclocarpum)
pada Berbagai Komposisi Media Tanam dan Dosis Controlled Release Fertilizer di Persemaian (Studi Kasus di PT. Asmin Bara Bronang, Kalimantan Tengah)
Annisa Hamidatur Rosyidah, Dr. Ir. Handojo Hadi Nurjanto, M.Agr.Sc., IPU ; Dr. Ir. Daryono Prehaten, S.Hut., M.Sc.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

PERTUMBUHAN DAN KUALITAS SEMAI TREMBESI *(Samanea saman)* DAN SENGON BUTO *(Enterolobium cyclocarpum)* PADA BERBAGAI KOMPOSISI MEDIA TANAM DAN DOSIS *CONTROLLED RELEASE FERTILIZER* DI PERSEMAIAN (STUDI KASUS DI PT. ASMIN BARA BRONANG, KALIMANTAN TENGAH)

Annisa Hamidatur Rosyidah[1], Handojo Hadi Nurjanto[2], Daryono Prehaten[2]

INTISARI

Penambangan terbuka menyebabkan deforestasi dan mendegradasi produktivitas tanah sehingga perlu direklamasi. Trembesi dan sengon buto merupakan jenis tanaman pionir *fast growing* yang sering dibudidayakan untuk revegetasi. Pembuatan semai di persemaian PT. Asmin Bara Bronang menggunakan media *topsoil* bekas tambang batubara, *cocopeat*, dan kompos dengan perbandingan 1:1:1 (v/v) serta ditambahkan pupuk granul konvensional. Pertumbuhan semai trembesi dan sengon buto tidak optimal dengan persentase hidupnya <60%. Penelitian ini bertujuan untuk mengetahui pengaruh komposisi media (*topsoil* bekas tambang batubara, *cocopeat*, kompos dan pasir), serta menentukan dosis optimal pupuk *controlled release fertilizer* (CRF) untuk pertumbuhan trembesi dan sengon buto.

Penelitian ini dilakukan di *greenhouse* menggunakan rancangan acak lengkap (RAL) faktorial dengan dua jenis pada plot terpisah. Faktor pertama adalah komposisi media (*cocopeat* : *topsoil* : kompos = 1:1:1, 2:1:1, 3:1:1, serta pasir : *topsoil* : kompos = 1:1:1, 2:1:1) dan faktor kedua adalah dosis pupuk CRF (3,67 g, 5,14 g, dan 7,35 g/*polybag*). Parameter yang diamati yaitu, persen hidup, tinggi, diameter, kekokohan, jumlah daun, panjang akar, rasio pucuk akar, berat kering total, dan indeks mutu bibit. Data pertumbuhan dianalisis anova dua arah, sedangkan data kualitas bibit dirangking lalu dianalisis deskriptif kuantitatif.

Hasil penelitian menunjukkan bahwa perlakuan media dan dosis pupuk CRF meningkatkan pertumbuhan semai. Perlakuan terbaik untuk trembesi yakni M2P1 (*cocopeat* : *topsoil* : kompos rasio 2:1:1+3,67 g pupuk), sedangkan sengon buto M2P3 (*cocopeat* : *topsoil* : kompos rasio 2:1:1+7,35 g pupuk). Perlakuan terburuk untuk kedua jenis tersebut adalah M2P0 (*cocopeat* : *topsoil* : kompos rasio 2:1:1 tanpa pupuk). Secara independen, pupuk CRF berpengaruh nyata terhadap seluruh parameter pertumbuhan, sementara media umumnya tidak berpengaruh nyata terhadap parameter pertumbuhan kecuali pada diameter trembesi umur 6 minggu. Meskipun media tidak banyak menunjukkan perbedaan nyata, media secara langsung berinteraksi dengan pupuk CRF memengaruhi pertumbuhan semai sebagai sarana penyerapan nutrisi.

Kata kunci: *Controlled Release Fertilizer, Fast Growing Species*, Kualitas Semai, Media Tanam, Pertumbuhan Semai

[1] Mahasiswa Fakultas Kehutanan UGM
[2] Staf Pengajar Fakultas Kehutanan UGM

UNIVERSITAS GADJAH MADA
Pertumbuhan dan Kualitas Semai Trembesi (Samanea saman) dan Sengon Buto (Enterolobium cyclocarpum) pada Berbagai Komposisi Media Tanam dan Dosis Controlled Release Fertilizer di Persemaian (Studi Kasus di PT. Asmin Bara Bronang, Kalimantan Tengah)
Annisa Hamidatur Rosyidah, Dr. Ir. Handojo Hadi Nurjanto, M.Agr.Sc., IPU ; Dr. Ir. Daryono Prehaten, S.Hut., M.Sc.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

GROWTH AND QUALITY OF RAIN TREE *(Samanea saman)* AND EARPOD TREE *(Enterolobium cyclocarpum)* SEEDLINGS ON VARIOUS GROWING MEDIA COMPOSITIONS AND CONTROLLED RELEASE FERTILIZER DOSES IN THE NURSERY (CASE STUDY AT PT. ASMIN BARA BRONANG, CENTRAL KALIMANTAN)

Annisa Hamidatur Rosyidah[1], Handojo Hadi Nurjanto[2], Daryono Prehaten[2]

ABSTRACT

Open-pit mining causes deforestation and degrades soil productivity, making reclamation necessary to restore the affected land. Rain tree (Samanea saman) and earpod tree (Enterolobium cyclocarpum) are fast-growing pioneer species commonly cultivated for revegetation. Seedling production at the nursery of PT Asmin Bara Bronang uses a growing medium of post-coal-mining topsoil, cocopeat, and compost at a ratio of 1:1:1 (v/v), supplemented with conventional granular fertilizer. However, the growth of rain tree and earpod tree seedlings was suboptimal, with a survival rate of <60%. This study aimed to determine the effect of medium composition (post-coal-mining topsoil, cocopeat, compost, and sand) and to identify the optimal dose of controlled-release fertilizer (CRF) for the growth of rain tree and earpod tree .

This research was conducted in a greenhouse using a factorial completely randomized design (CRD) for S. saman and E. cyclocarpum in separate plots. The first factor was media composition (cocopeat:topsoil:compost = 1:1:1, 2:1:1, 3:1:1, and sand:topsoil:compost = 1:1:1, 2:1:1), while the second factor was CRF dosage (3.67 g, 5.14 g, and 7.35 g/polybag). The observed parameters included survival percentage, height, diameter, sturdiness, number of leaves, root length, shoot-root ratio, total dry weight biomass, and seedling quality index. Growth data were analyzed using two-way ANOVA, while seedling quality data were ranked and analyzed using quantitative descriptive analysis.

The results showed that the medium and CRF dose treatments improved seedling growth. The best treatment for S. saman was M2P1 (cocopeat : topsoil : compost ratio 2:1:1 + 3.67 g CRF), while for E. cyclocarpum it was M2P3 (cocopeat : topsoil : compost ratio 2:1:1 + 7.35 g CRF). The worst treatment for both species was M2P0 (cocopeat : topsoil : compost ratio 2:1:1 without CRF). Independently, CRF had a significant effect on all growth parameters, whereas the medium generally had no significant effect, except on the diameter of S. saman seedlings at 6 weeks of age. Although the medium showed few significant differences on its own, it interacted directly with CRF in influencing seedling growth by serving as the means of nutrient uptake.

Keywords: *Controlled Release Fertilizer, Fast Growing Species, Growing Media, Seedling Growth , Seedling Quality Index*

[1] Student of Faculty of Forestry UGM
[2] Lecturer of Faculty of Forestry UGM