

Pengaruh Komposisi Media Seedball dan Skarifikasi Terhadap Keberhasilan Perkecambahan Benih *Acacia mangium*

Muhammad Salman Imanullah¹, Suryo Hardiwinoto², Widiyatno²

INTISARI

Acacia mangium merupakan jenis tanaman cepat tumbuh yang kerap dipakai dalam aktivitas rehabilitasi hutan. Rehabilitasi hutan cenderung memerlukan intervensi manusia dan metode yang memadai. Pemilihan metode *direct seeding* dengan perlakuan *seedball* dan skarifikasi menjadi populer karena mampu menjangkau kawasan dengan medan yang sulit. Tujuan penelitian ini adalah untuk mengetahui pengaruh komposisi media *seedball*, skarifikasi, serta kombinasi keduanya terhadap keberhasilan perkecambahan biji *Acacia mangium*.

Penelitian dilakukan dengan rancangan acak lengkap (CRD) dengan dua perlakuan, yaitu media *seedball* dan skarifikasi. Perlakuan media *seedball* meliputi perbandingan tanah dan kompos *seedball* terdiri dari, (A1) media pasir (kontrol), (A2) 1:1, dan (A3) 1:2. Perlakuan teknik skarifikasi biji terdiri dari perlakuan (B1) tanpa skarifikasi (kontrol), (B2) perendaman air panas 100 °C +air dingin dan (B3) larutan asam sulfat (H₂SO₄) 10%. Setiap kombinasi perlakuan diperlukan 15 *seedball* dan diulang sebanyak 6 kali. Aspek yang dilihat meliputi daya kecambah, kecepatan kecambah, tinggi, diameter, dan panjang akar. Data yang diperoleh dianalisis dengan menggunakan ANOVA dua arah dan uji lanjut dengan DMRT taraf signifikansi 5%.

Hasil penelitian menunjukkan perlakuan *seedball* berpengaruh nyata terhadap tinggi semai, diameter semai dan panjang akar. Namun, tidak berpengaruh nyata terhadap daya kecambah dan kecepatan kecambah. *Seedball* dengan komposisi tanah dan kompos 1:1 (A2) menampilkan nilai rata-rata yang lebih baik dengan tinggi 5,71 cm, diameter 0,87 mm, dan panjang akar 6,64 cm. Perlakuan skarifikasi berpengaruh nyata terhadap daya kecambah, kecepatan tumbuh, tinggi semai, dan diameter semai. Skarifikasi menggunakan larutan asam sulfat (H₂SO₄) 10% (B3) menunjukkan nilai tertinggi pada nilai rata-rata daya kecambah 73,3%, kecepatan kecambah 7,25 semai hari⁻¹, tinggi 5,45 cm, dan diameter 0,77 mm. Kombinasi antara kedua perlakuan menunjukkan pengaruh nyata terhadap tinggi dan panjang akar.

Kata Kunci: *Acacia mangium*, *seedball*, skarifikasi, perkecambahan

¹ Mahasiswa Fakultas Kehutanan UGM

² Staf Pengajar Fakultas Kehutanan UGM

THE ROLE OF SEEDBALL MEDIA COMPOSITION AND SEED SCARIFICATION ON THE SUCCESS OF *Acacia mangium* SEED GERMINATION

Muhammad Salman Imanullah¹, Suryo Hardiwinoto², Widiyatno²

ABSTRACT

Acacia mangium is a fast growing plant species that is often used in forest rehabilitation activities. Forest rehabilitation tends to require adequate human intervention and methods. The determination of the direct seeding method with seedball and scarification treatment is becoming popular because of the ability to reach areas with difficult terrain. The purpose of this study was to determine the effect of seedball media composition, scarification, and their combination on the success of *Acacia mangium* seed germination.

The study was conducted in a completely randomized design (CRD) with two treatments. Treatments of seedball media were divided into three compositions, namely without seedball (control) (A1), 1:1 (A2), and 1:2 (A3). Seed pre-treatment techniques consisted of without scarification (control) (B1), hot water 100 °C + cold water immersion (B2) and 10% sulfuric acid (H₂SO₄) solution (B3). Each treatment combination consisted of 15 seedballs and was repeated 6 times. Germination rate, sprouting speed, height, diameter, and root length were observed. Data were analyzed using two-way ANOVA and followed by DMRT at 5%.

The results showed that the seedball treatment had a significant effect on seedling height, seedling diameter and root length. However, significant effects on germination rate and sprouting speed were not observed. Seedballs with composition of soil and compost (1:1) showed better average values on height (5.71 cm), diameter (0.87 mm), and root length (6.64 cm). The scarification treatment had a significant effect on germination, growth rate, seedling height, and seedling diameter, but it did not have a significant effect on root length. Scarification using 10% sulfuric acid (H₂SO₄) solution (B3) showed the highest value at the average germination rate (73.3%), germination rate (7.25 seedlings day⁻¹), height (5.45 cm), and diameter (0.77 mm). The combination of the two treatments showed a significant effect on root height and length.

Keywords: *Acacia mangium*, seedball, seed pre-treatment, germination

¹ Student of Faculty of Forestry UGM

² Lecturer of Faculty of Forestry UGM