

POTENSI CENDAWAN ENDOFIT AKAR BALSA SEBAGAI BIOSTIMULAN PERKECAMBAHAN BENIH SENGON (*Falcataria moluccana*)

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ABSTRAK

Sengon (*Falcataria moluccana*) merupakan tanaman kehutanan tahunan yang cepat tumbuh, dan dapat dijadikan program pilihan dalam pelestarian hutan. Namun penyediaan bibit berkualitas masih menghadapi tantangan dari proses perkecambahannya yang memungkinkan untuk gagal berkecambah. Penelitian ini bertujuan untuk mengetahui pengaruh cendawan endofit hasil isolasi dari akar balsa terhadap daya kecambah, kelulushidupan, kecepatan berkecambah, dan semaian sengon. Metode yang digunakan yaitu metode eksperimen dengan parameter pengamatan meliputi daya kecambah, kelulushidupan, kecepatan perkecambahan, berat basah semaian, berat kering semaian, diameter batang semaian, tinggi semaian, panjang akar semaian, jumlah daun semaian, kerapatan stomata, dan klorofil. Rancangan Penelitian yang digunakan adalah Rancangan Acak Lengkap (RAL). Cendawan endofit yang digunakan berasal dari isolat kode A dan kode B. Penelitian ini dilakukan dengan membagi perlakuan kedalam 3 kelompok yaitu, S0 (kontrol), S1 (cendawan kode A), dan S2 (cendawan kode B). Perlakuan cendawan endofit ini dilakukan dengan merendam benih sengon menggunakan suspensi koleksi BRIN. Analisis data dilakukan menggunakan *software* SPSS dengan uji *One Way* ANOVA dan Kruskal Wallis. Hasil penelitian menunjukkan bahwa perlakuan cendawan endofit berpengaruh nyata ($p < 0,05$) terhadap daya berkecambah, kelulushidupan, kecepatan berkecambah, berat basah, berat kering, tinggi semaian, diameter batang, jumlah daun, dan kerapatan stomata, tetapi tidak berpengaruh nyata terhadap panjang akar ($p > 0,05$). Perlakuan S2 memberikan hasil terbaik pada sebagian besar parameter, yaitu daya berkecambah (78,33%), kelulushidupan (93,07%), kecepatan berkecambah (5,79%/hari), berat basah (0,092 g), berat kering (0,01168 g), tinggi semaian (9,34 cm), diameter batang (0,86 mm), jumlah daun (2,87 helai), kerapatan stomata (238,83 mm²), serta panjang akar (2,24 cm). Pada analisis klorofil, perlakuan S1 menghasilkan kadar klorofil a (26,40 mg/L) dan total klorofil (39,26 mg/L) tertinggi, sedangkan klorofil b tertinggi diperoleh pada perlakuan S2 (13,35 mg/L). Berdasarkan hasil penelitian, cendawan endofit kode B lebih berpotensi sebagai biostimulan untuk meningkatkan perkecambahan sengon karena menunjukkan respon pertumbuhan terbaik dibandingkan perlakuan lain.

Kata Kunci: Biostimulan, cendawan endofit, perkecambahan, sengon

POTENTIAL OF BALSA ROOT ENDOPHYTE FUNGI AS A BIOSTIMULANT FOR SENGON SEED GERMINATION (*Falcataria moluccana*)

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ABSTRACT

Sengon (*Falcataria moluccana*) is a fast-growing perennial forestry species suitable for forest conservation initiatives. However, the production of high-quality seedlings faces challenges due to potential germination failure. This study aimed to determine the effects of endophytic fungi isolated from balsa roots on the germination capacity, survival rate, germination speed, and seedling characteristics of sengon. An experimental method was employed, with observed parameters including germination capacity, survival rate, germination speed, seedling fresh weight, seedling dry weight, stem diameter, seedling height, root length, number of leaves, stomatal density, and chlorophyll content. A Completely Randomized Design (CRD) was used for the study. The endophytic fungi utilized were isolates designated as Code A and Code B. Treatments were divided into three groups: S0 (control), S1 (Code A fungi), and S2 (Code B fungi). Fungal treatments were administered by soaking sengon seeds in fungal suspensions provided by BRIN. Data analysis was performed using SPSS software, employing One-Way ANOVA and Kruskal-Wallis tests. The results indicated that the endophytic fungal treatments had a significant effect ($p < 0.05$) on germination capacity, survival rate, germination speed, fresh weight, dry weight, seedling height, stem diameter, number of leaves, and stomatal density, but did not significantly affect root length ($p > 0.05$). Treatment S2 yielded the best results across most parameters: germination rate (78.33%), survival rate (93.07%), germination speed (5.79%/day), fresh weight (0.092 g), dry weight (0.01168 g), seedling height (9.34 cm), stem diameter (0.86 mm), number of leaves (2.87), stomatal density (238.83 mm²), and root length (2.24 cm). Regarding chlorophyll analysis, treatment S1 produced the highest levels of chlorophyll a (26.40 mg/L) and total chlorophyll (39.26 mg/L), whereas the highest chlorophyll b content was obtained with treatment S2 (13.35 mg/L). Based on the study results, the endophytic fungus designated as B shows greater potential as a biostimulant for enhancing sengon germination, as it elicited the best growth response compared to the other treatments.

Keywords: *Biostimulant, endophytic fungus, germination, sengon*