

Genetic Parameter Estimates for Growth in a Progeny Test of Sengon (*Falcataria moluccana*) in Jember, East Java

Penaksiran Parameter Genetik untuk Pertumbuhan di Uji Keturunan Sengon (*Falcataria moluccana*) di Jember, Jawa Timur

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Abstract

An open-pollinated progeny test of sengon (*Facataria moluccana*) was conducted in Ambulu, Jember, East Java to ascertain its growth potentials and genetic improvement for sawlog plantations. One hundred six open-pollinated families originated from 11 seed sources were tested in a progeny test. The trial was arranged in a randomized completely block design, 4 tree plot replicated 15 times. At age of 1 year, the mean of height growth was 8.3 m, while that of diameter was 10.2 cm. Significant differences between seed sources and between families within seed source were found both for height and diameter growth. Individual tree heritability estimate for height was low (0.08 ± 0.01), while that of diameter was moderate (0.10 ± 0.05). Family heritabilities for height and diameter were considered moderate, namely 0.37 ± 0.06 and 0.45 ± 0.04 for tree height and diameter, respectively. Genetic correlation (r_g) between height and diameter growth was positive and moderately high (0.72), while phenotypic correlation between these traits was positive of 0.67.

Keywords: Sengon, *Falcataria moluccana*, progeny test, heritability, genetic correlation

Abstrak

Uji keturunan sengon penyerbukan terbuka (*half-sib*) sengon (*Facataria moluccana*) dibangun di Ambulu, Jember, Jawa Timur untuk mengevaluasi potensi pertumbuhan dan pemuliaan genetiknya untuk pembuatan pertanaman kayu pertukangan. Seratus enam famili penyerbukan terbuka dari 11 sumber benih diuji dalam uji keturunan. Percobaan menggunakan rancangan acak lengkap berblok, 4 pohon per plot dengan ulangan sebanyak 15. Pada umur 1 tahun tinggi rerata sebesar 8,3 m sedangkan diameter rerata 10,2 cm. Terdapat perbedaan nyata di antara sumber benih dan di antara famili dalam sumber benih untuk pertumbuhan tinggi dan diameter. Taksiran heritabilitas individu untuk tinggi tergolong rendah ($0,08 (\pm 0,01)$), sedangkan untuk diameter termasuk sedang ($0,01 \pm 0,05$). Heritabilitas famili untuk tinggi dan diameter termasuk sedang, secara berturut-turut adalah $0,37 \pm 0,06$ dan $0,45 \pm 0,04$ untuk tinggi dan diameter. Korelasi genetik (0,72) antara pertumbuhan tinggi dan diameter adalah positif dan cukup tinggi (0,72) sedangkan korelasi fenotipik antarsifat-sifat ini adalah 0,67.

Kata kunci: Sengon, *Falcataria moluccana*, uji keturunan, heritabilitas, korelasi genetik