

EVALUASI AWAL UJI KETURUNAN F2 KAYU PUTIH (*Melaleuca cajuputi* subsp. *cajuputi* Powell) SAMPAI UMUR 6 BULAN DI PLAYEN, GUNUNGKIDUL

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INTISARI

Tanaman *Melaleuca cajuputi* yang lebih dikenal dengan nama kayu putih merupakan sumber industri minyak kayu putih di Indonesia. Produk utama dari tanaman kayu putih adalah minyak kayu putih dengan kadar *1,8-cineole* tertentu, serta hasil limbah daun dan ranting yang dapat digunakan untuk kompos. Strategi pemuliaan tanaman kayu putih untuk peningkatan rendemen dan kadar *1,8-cineole* didasarkan pada pembangunan uji keturunan guna mendapatkan data tentang variasi pertumbuhan dan pendugaan parameter genetik. Pembangunan kebun benih uji keturunan generasi kedua (F2) bertujuan untuk meningkatkan kualitas genetik benih dari kebun benih generasi pertama serta menggabungkan potensi genetik yang ada di kebun benih Paliyan, Ponorogo, Cepu dan Gundih.

Tujuan dari penelitian ini antara lain: 1) Mengetahui persentase hidup tanaman uji keturunan F2 kayu putih di Playen, Gunungkidul, 2) Mengetahui variasi pertumbuhan tinggi dan diameter serta jumlah cabang aktual tanaman uji keturunan F2 kayu putih di Playen, Gunungkidul serta 3) Menaksir nilai heritabilitas pada sifat pertumbuhan tinggi dan diameter tanaman uji keturunan F2 kayu putih di Playen, Gunungkidul. Sumber materi berasal dari Kebun Benih (KB) Paliyan, Ponorogo, Gundih, Cepu, hasil penyerbukan terkendali dari KB Ponorogo, materi F1 KB Ponorogo dan sumber benih.

Hasil pengamatan selama 6 bulan di lapangan menunjukkan kemampuan adaptabilitas kayu putih di Playen, Gunungkidul cukup tinggi dengan persen hidup 83,68%. Hasil analisis varians menunjukkan terdapat perbedaan yang sangat nyata antar seedlot. Pertumbuhan terbaik ditunjukkan oleh seedlot 56 yang merupakan hasil persilangan terkendali famili 21 dengan 78 dari Kebun Benih Ponorogo. Dari perhitungan taksiran nilai heritabilitas pertumbuhan tanaman uji keturunan F2 kayu putih untuk half sib parameter tinggi sebesar 0,49 dan diameter sebesar 0,65 sedangkan untuk full sib parameter tinggi sebesar 0,14 dan diameter sebesar 0,26. Tanaman kayu putih uji keturunan F2 tersebut masih dalam tahap penyesuaian sehingga perlu dilakukan pengujian sifat minyak kayu putih lebih lanjut untuk memperoleh peningkatan genetik yang lebih baik.

Kata kunci: *Melaleuca cajuputi* subsp. *cajuputi*, uji keturunan F2, pertumbuhan

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**PRELIMINARY EVALUATION F2 PROGENY TRIAL OF CAJUPUT
(*Melaleuca cajuputi* subsp. *cajuputi* Powell) UNTIL 6 MONTH IN PLAYEN,
GUNUNGKIDUL**

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ABSTRACT

Melaleuca cajuputi known as cajuput or kayu putih is the main source of cajuput oil industry in Indonesia. The main product is cajuput oil with certain levels of 1,8-cineole. Spent leaves and twigs can be used for compost. The breeding program is proposed to be achieved by establishment of several progeny trials to obtain the variation of growth traits and genetic gain estimation. To date, a second generation progeny trial has been established in Gunungkidul to improve genetic quality of seeds provided by the first generation seedling seed orchards and to provide linkage among Paliyan, Ponorogo, Cepu and Gundih materials. Preliminary evaluation of the trial is discussed in this study.

The objectives of this study were therefore: 1) to examine the survival rate of the seedlots included in the trial, 2) to evaluate the variation of the growth of tree height and stem diameter and an actual number of tree branch, and 3) to assess the heritability of tree height and stem diameter. The tested seedlots included families from Paliyan, Ponorogo, Gundih, Cepu seedling seed orchard, controlled-pollinated families from Ponorogo seed orchard, original families that contributed to Ponorogo (assuming their parents are shown to be superior for growth and oil properties), and entries of Gundih and Ponorogo commercial seedlots.

This study showed that survival rate of the plants in the trial was high i.e. 83.68%. The analysis of variance showed that there are significant differences between seedlots for all parameters. The best tree growth has been performed by the seedlot-56. This seedlot is a control-pollinated family of family 21 and 78 of Ponorogo Seed Orchard. The estimated heritabilities of open-pollinated families were 0.49 for tree height and 0.62 for stem diameter. Whilst heritability of control-pollinated families from Ponorogo seed orchard is estimated to be 0.14 and 0.26 for tree height and stem diameter respectively. It should be noted however that the cajuput second generation progeny trial is still in an establishment stage which mean that there is possibility for changes in family ranking and heritability values. Further evaluation of the trial is recommended.

Keywords: *Melaleuca cajuputi* subsp. *cajuputi*, second generation progeny trial, growth

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