

RINGKASAN

Padi merupakan komoditas pangan utama penghasil beras, dengan lonjakan produksi yang signifikan. Kondisi ini menuntut upaya mempertahankan stabilitas produksi sekaligus penguatan nilai tambah komoditas, salah satunya melalui pengembangan padi aromatik. Kendala utama padi aromatik adalah umur panen yang relatif panjang, sehingga diperlukan perakitan varietas padi aromatik berumur genjah melalui pemuliaan tanaman. Tujuan dari penelitian ini yaitu: (1) mengetahui pola segregasi karakter aromatik dan kegenjahan pada F_2 hasil persilangan Pandanwangi $\times$ Cakrabuana, (2) mengetahui keragaman genetik dan heritabilitas karakter aromatik dan kegenjahan pada F_2 hasil persilangan Pandanwangi $\times$ Cakrabuana, serta (3) mengetahui korelasi antara kompoen hasil dengan hasil pada F_2 hasil persilangan Pandanwangi $\times$ Cakrabuana.

Eksperimen dilaksanakan pada Januari hingga September 2025, di lahan sawah irigasi Kelurahan Karangwangkal dan Laboratorium Pemuliaan Tanaman dan Bioteknologi, Fakultas Pertanian, Universitas Jenderal Soedirman. Percobaan menggunakan 272 genotipe F_2 dan varietas Pandanwangi serta Cakrabuana sebagai kontrol. Percobaan dilakukan menggunakan Rancangan Acak Kelompok (RAK) ter-Augmentasi. Analisis data meliputi uji normalitas, uji chi-square, estimasi keragaman genetik, heritabilitas, analisis korelasi, serta *path analysis*.

Hasil penelitian menunjukkan bahwa karakter aromatik maupun kegenjahan dikendalikan oleh dua gen epistasis resesif duplikat dengan nisbah segregasi 9:7. Karakter aromatik memiliki nilai koefisien keragaman fenotipik, koefisien keragaman genotipik, dan heritabilitas yang tinggi. Sebaliknya, karakter kegenjahan memiliki koefisien keragaman fenotipik, dan koefisien keragaman genotipik yang rendah, dengan heritabilitas yang tinggi. Seleksi yang direkomendasikan adalah seleksi pedigree. Hasil analisis korelasi dan *path analysis* menunjukkan bahwa persentase gabah isi dan jumlah gabah per malai memiliki pengaruh langsung terhadap hasil dan dapat dijadikan sebagai parameter seleksi genotipe berdaya hasil tinggi, sementara karakter lainnya tidak menunjukkan hubungan langsung yang kuat dengan hasil.

SUMMARY

Rice is a primary food commodity for staple grain production, with significant increase in production. This condition necessitates efforts to maintain production stability while simultaneously enhancing the added value of the commodity, one of which is through the development of aromatic rice. The main constraint of aromatic rice is its relatively long maturity duration, thus developing early maturing aromatic rice varieties through plant breeding is required. The objectives of this research were to: (1) determine the segregation patterns of aromatic and early maturity characters in the F₂ population derived from the Pandanwangi x Cakrabuana cross, (2) determine the genetic variability and heritability of aromatic and early maturity characters in the F₂ population, and (3) determine the correlation between yield components and yield in the F₂ population.

The experiment was conducted from January to September 2025 at the irrigated rice field of Karangwangkal Village and the Plant Breeding and Biotechnology Laboratory, Faculty of Agriculture, Jenderal Soedirman University. The experiment utilized 272 F₂ genotypes with Pandanwangi and Cakrabuana varieties serving as controls, arranged in an Augmented Randomized Complete Block Design (Augmented RCBD). Data analysis included normality tests, Chi-square test, estimation of genetic variability and heritability, correlation analysis, and path analysis.

The results showed that both aromatic and early maturity characters were controlled by two genes with duplicate recessive epistasis action, exhibiting a 9:7 segregation ratio. The aromatic character exhibited high phenotypic coefficient of variation, genotypic coefficient of variation and heritability. Conversely, the early maturity character showed low phenotypic coefficient of variation and genotypic coefficient of variation, but high heritability. The recommended selection method is pedigree selection. Correlation and path analysis results indicated that the percentage of filled grains and the number of grains per panicle had direct effects on yield and could serve as selection criteria for high-yielding genotypes, while other characters did not show strong direct relationships with yield.