

RINGKASAN

Padi aromatik berumur genjah merupakan salah satu karakter padi yang diminati karena memiliki mutu tinggi serta mampu meningkatkan efisiensi waktu tanam. Perakitan varietas padi dengan karakter tersebut dapat dilakukan melalui persilangan padi varietas Rojolele yang aromatik dengan varietas M70D yang berumur genjah. Penelitian bertujuan menganalisis keragaman genetik, heritabilitas, hubungan antara karakter, serta melakukan seleksi pada populasi F2 padi persilangan Rojolele \times M70D.

Percobaan lapangan telah dilaksanakan di Lahan Sawah Irigasi Kelurahan Karangwangkal dan Laboratorium Pemuliaan Tanaman dan Bioteknologi, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Penelitian ini dilaksanakan selama 8 bulan mulai Januari sampai dengan September 2025. Rancangan percobaan yang digunakan adalah Rancangan Acak Kelompok (RAK) *Augmented Design* yang terdiri atas 3 blok. Penelitian menggunakan 256 genotipe F2 hasil persilangan Rojolele \times M70D dan empat varietas pembanding yaitu Rojolele, M70D, Pandanwangi, dan Cakrabuana. Variabel yang diamati pada penelitian ini meliputi aromatik, tinggi tanaman, umur berbunga, umur panen, persentase gabah isi, jumlah malai per rumpun, jumlah anakan total, jumlah gabah per malai, dan bobot gabah per rumpun. Data pengamatan dianalisis menggunakan analisis ragam (ANOVA) *augmented design*, analisis keragaman genetik, heritabilitas, analisis korelasi, analisis sidik lintas dan seleksi indeks terboboti (WINDEX).

Hasil penelitian menunjukkan bahwa nilai keragaman genetik yang tinggi diperoleh pada persentase gabah isi, jumlah gabah isi, jumlah malai per rumpun, jumlah anakan total dan jumlah gabah per malai. Nilai duga heritabilitas yang tergolong tinggi ditunjukkan oleh tinggi tanaman, umur berbunga, umur panen, persentase gabah isi, jumlah malai per rumpun, jumlah anakan total, dan jumlah gabah per malai. Umur berbunga dan umur panen berkorelasi positif terhadap tinggi tanaman dan jumlah gabah per malai. Karakter komponen hasil yang berkorelasi positif terhadap hasil adalah persentase gabah isi, jumlah gabah isi dan jumlah gabah per malai. Umur berbunga dan jumlah gabah isi berpengaruh langsung terhadap hasil. Tanaman padi populasi F2 hasil persilangan Rojolele \times M70D yang dapat dilanjutkan untuk seleksi F3 adalah R2B13T3, R3B8T1, R3B3T4, R3B4T2, R2B3T3, R1B23TT2, R3B18T2, R2B21T3, R3B2T4, R1B8T3, R3B1T1, R3B16T2, dan R3B13T1 dengan karakteristik aromatik, kegenjahan, dan komponen hasil.

SUMMARY

Early maturity and aromatic rice is a desired characteristic of rice. It offers high quality and can increase planting efficiency. These traits can be developed by crossing the aromatic Rojolele variety with the early-maturing M70D variety. This study aims to analyze genetic variability, heritability, and relationships between traits and perform selection on the F₂ population from Rojolele × M70D rice crosses.

The research was conducted at the Karangwangkal Village Irrigated Rice Field and at the Plant Breeding and Biotechnology Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto. The research lasted 8 months, from January to September 2025. The experimental design was an Augmented Randomized Block Design consisting of 3 blocks. The study used 256 genotypes from the Rojolele × M70D cross and 4 checks, Rojolele, M70D, Pandanwangi, and Cakrabuana. Observed variables included aroma, plant height, flowering age, harvest age, percentage of filled grains, number of panicles, total number of tillers, number of grains per panicle, and yield per plant. Data were analyzed using ANOVA based augmented design, genetic variability analysis, heritability, correlation analysis, path analysis and weighted index selection (WINDEX).

The results showed that high genetic variability were obtained in percentage of filled grains, number of filled grain, number of panicles, total number of tillers and number of grains per panicle. High estimated heritability were indicated by plant height, flowering age, harvest age, percentage of filled grains, number of panicle, total number of tillers, and number of grains per panicle. Flowering age and harvest age were positively correlated with plant height and number of grains per panicle. Yield component characters that were positively correlated with yield were the percentage of filled grain, the number of filled grains, and the number of grains per panicle. Flowering age and the number of filled grain had a direct effect on yield. The population of rice plants resulting from the Rojolele × M70D cross that can be continued for F₃ selection are R2B13T3, R3B8T1, R3B3T4, R3B4T2, R2B3T3, R1B23TT2, R3B18T2, R2B21T3, R3B2T4, R1B8T3, R3B1T1, R3B16T2, and R3B13T1 with aromatic, early maturity, and yield component characteristics.