

RINGKASAN

Beras Basmati merupakan beras khusus asal Pakistan dan India yang memiliki karakteristik bulir panjang dan ramping. Beras Basmati merupakan salah satu varian beras yang diimpor oleh pemerintah karena termasuk beras khusus yang berindikasi geografis. Permasalahan mengenai ketersediaan beras Basmati di Indonesia mendorong para pemulia tanaman untuk mengembangkan varietas baru padi berkarakteristik beras Basmati yang berdaya hasil tinggi dan cocok di iklim Indonesia. Penelitian ini bertujuan untuk 1) mengetahui koefisien keragaman genetik, koefisien keragaman fenotip, nilai duga heritabilitas, dan kemajuan genetik komponen daya hasil dan mutu hasil tanaman padi hasil persilangan populasi F_3 varietas Inpago Unsoed 1 \times Basmati Pakistan dan resiprokalnya, 2) mendapatkan tanaman padi generasi F_4 dengan genotipe terbaik berdasarkan komponen daya hasil dan mutu hasil yang diperoleh untuk diseleksi lebih lanjut. Penelitian ini dilaksanakan dari bulan Juli 2021-Januari 2022. Rancangan percobaan yang digunakan adalah *Augmented Design*. Perlakuan yang diuji adalah individu-individu F_3 dari persilangan Inpago Unsoed 1 \times Basmati Pakistan (B12), individu-individu F_3 dari persilangan Basmati Pakistan \times Inpago Unsoed 1 (B7), dan 2 varietas cek (Inpago Unsoed 1 dan Basmati Pakistan). Variabel yang diamati adalah tinggi tanaman, jumlah anakan produktif, umur tanaman berbunga, umur panen, panjang malai, jumlah gabah total per malai, jumlah gabah isi per malai, bobot gabah total per malai, bobot gabah per rumpun, bobot 1000 bulir, panjang beras, dan rasio panjang:lebar beras. Data pengamatan dianalisis nilai koefisien keragaman genetik, koefisien keragaman fenotip, heritabilitas, dan kemajuan genetik. Hasil penelitian menunjukkan nilai keragaman yang agak luas, nilai heritabilitas tinggi, dan kemajuan genetik tinggi pada populasi F_3 persilangan Inpago Unsoed 1 \times Basmati Pakistan terdapat pada jumlah gabah total per malai, jumlah gabah isi per malai, dan bobot gabah total per malai. Nilai keragaman yang agak luas, nilai heritabilitas tinggi, dan kemajuan genetik tinggi pada populasi F_3 persilangan Basmati Pakistan \times Inpago Unsoed 1 terdapat pada panjang malai, jumlah anakan produktif, jumlah gabah isi per malai, dan bobot gabah total per malai. Diperoleh sebanyak 14 dari 260 individu tanaman populasi F_3 yang berpotensi memiliki karakteristik beras Basmati dan berhasil tinggi. Individu-individu tanaman terseleksi dari persilangan Inpago Unsoed 1 \times Basmati Pakistan memiliki komponen daya hasil dan mutu hasil yang lebih baik dibandingkan individu terseleksi dari persilangan Basmati Pakistan \times Inpago Unsoed 1.

Kata Kunci: Basmati Pakistan, Inpago Unsoed 1, Koefisien keragaman genetik, Koefisien keragaman fenotip, Heritabilitas, Kemajuan genetik.

SUMMARY

Basmati is a speciality rice from Pakistan and India which has long and slender grains. Basmati is one of the rice cultivars imported by the government because it is included in the special rice category with geographical indications. The problems regarding the availability of Basmati rice in Indonesia encourage plant breeders to develop new varieties of rice with the characteristics of Basmati that are high yielding and suitable for the Indonesian climate. This study aims to 1) determine genotypic coefficient of variability, phenotypic coefficient of variability, heritability, and genetic advance of the yield quality and yield components of the F_3 population of Inpago Unsoed 1 \times Pakistani Basmati crossing and its reciprocal, 2) obtain the F_4 population rice plants with the best genotypes based on yield quality and yield components acquired for further selection. This research was conducted in July 2021-January 2022. The experimental design used was the Augmented Design. The treatments were F_3 individuals from Inpago Unsoed 1 \times Pakistani Basmati (B12) crossing, F_3 individuals from Pakistani Basmati \times Inpago Unsoed 1 (B7) crossing, and 2 check varieties (Inpago Unsoed 1 and Pakistani Basmati). The variables observed were plant height, number of productive tillers, flowering dates, harvesting age, panicle length, total grain number per panicle, number of filled grains per panicle, total grain weight per panicle, grain weight per clump, 1000 grain weight, grain length, and length to breadth ratio. The data were analyzed for genotypic coefficient of variability, phenotypic coefficient of variability, heritability, and genetic advance values. The results showed rather wide diversity, high heritability, and high genetic values in the F_3 population of Inpago Unsoed 1 \times Pakistani Basmati crossing in the total number of grains per panicle, the number of filled grains per panicle, and the total grain weight per panicle. Rather wide diversity, high heritability, and high genetic values in the F_3 population of Pakistani Basmati \times Inpago Unsoed 1 crossing in panicle length, the number of production tillers, the number of filled grains per panicle, and the total grain weight per panicle. Fourteen of 260 individual plant populations F_3 has basmati characteristics and high yield potential. Selected plant individuals from the Inpago Unsoed 1 \times Pakistani Basmati crossing had better yield quality and yield components than the selected individuals from the Pakistani Basmati \times Inpago Unsoed 1 crossing.

Keywords: Pakistani Basmati, Inpago Unsoed 1, Genotypic coefficient of variability, Phenotypic coefficient of variability, Heritability, Genetic advance.