

PENDUGAAN PARAMETER GENETIK DAN KEMAJUAN GENETIK KARAKTER KUANTITATIF CABAI MERAH KERITING (*Capsicum annum* L.) GENERASI M3

Oleh : Fira Ardhana
Dibimbing oleh : Nailan Nabila

ABSTRAK

Cabai merah keriting (*Capsicum annum* L.) merupakan salah satu komoditas hortikultura yang bernilai ekonomi tinggi. Upaya peningkatan hasil cabai dapat dilakukan melalui pemuliaan mutasi. Penelitian ini bertujuan untuk menganalisis parameter genetik dan kemajuan genetik karakter kuantitatif genotipe cabai merah keriting generasi M3 dan memperoleh genotipe harapan yang memiliki produksi tinggi. Penelitian ini dilakukan melalui percobaan lapangan dengan menggunakan metode Rancangan Acak Kelompok Lengkap (RAKL) satu faktor dengan 3 ulangan. Perlakuan yang digunakan meliputi 9 genotipe mutan M3 yaitu TH1-214-057, TH1-214-132, TH1-214-186, TH1-215-096, TH2-458-031, TH2-458-106, TH2-458-146, TH3-265-068 dan kontrol yaitu varietas Thunder. Data dianalisis menggunakan *Analysis of Variance* (ANOVA) taraf 5% dan 1% dan apabila terdapat beda nyata dilanjutkan dengan uji lanjut *Honestly Significant Difference* (HSD) pada taraf 5%. Keragaman pada karakter kuantitatif cabai merah keriting generasi M3 tergolong rendah. Karakter panjang buah memiliki nilai heritabilitas tinggi. Karakter tinggi tanaman, umur berbunga, panjang buah, bobot per buah, dan bobot buah per tanaman memiliki nilai kemajuan genetik yang cukup tinggi. Genotipe TH1-215-096 dan TH2-458-146 direkomendasikan untuk dilanjutkan ke generasi selanjutnya karena memiliki produksi tinggi.

Kata kunci: cabai merah keriting, heritabilitas, kemajuan genetik, keragaman genetik, mutasi

ESTIMATION OF GENETIC PARAMETERS AND GENETIC GAIN OF QUANTITATIVE CHARACTERS CURLY RED CHILI (*Capsicum annum* L.) M3 GENERATION

By: Fira Ardhana
Supervised by: Nailan Nabila

ABSTRACT

Curly red chili (*Capsicum annum* L.) is belong to the horticultural commodities with high economic value. Increasing chili pepper yields can be achieved through mutation breeding. This study aims to analyze the genetic parameters and genetic gain of quantitative traits in curly red chili pepper genotypes of the M3 generation and obtain promising genotypes with high yield. This research was conducted through a field experiment using a Randomized Complete Block Design (RCBD) with one factor and three replications. The treatments used consist of nine M3 mutant genotypes namely TH1-214-057, TH1-214-132, TH1-214-186, TH1-215-096, TH2-458-031, TH2-458-106, TH2-458-146, TH3-265-068 and one control, the Thunder variety. The data will be analyzed using Analysis of Variance (ANOVA) at the 5% and 1% level, and if there were significant differences, it was continued with a further Honestly Significant Difference (HSD) test at the 5% level. The variability of quantitative traits in M3 generation curly red chili was generally low. Fruit length exhibited high heritability. Plant height, flowering age, fruit length, fruit weight, and fruit weight per plant showed relatively high genetic advance. Genotypes TH1-215-096 dan TH2-458-146 are recommended for advancement to the next generation due to their high yield.

Keywords: curly red chili, genetic gain, genetic variance, heritability, mutation