

GENETIC VARIANTS OF SEVERAL MUTANT GENOTYPES OF CURLY RED CHILI PEPPER (*Capsicum annum L.*) IN M2 GENERATION RESULTING FROM MUTATION INDUCTION WITH GAMMA RAYS

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ABSTRACT

The productivity of chili peppers can be improved through mutation breeding. This study aims to obtain the genetic diversity and heritability values of several observed traits in the M2 generation and to obtain promising strains from several genotypes. The research was carried out from March 2024 to June 2024 at the Wedomartani Experimental Garden, Faculty of Agriculture, UPN Veteran Yogyakarta, located in Wedomartani, Ngemplak, Sleman, Yogyakarta. The field experiment was carried out using a Randomized Complete Block Design (RCBD) with five treatments and three replications. The treatment consisted of five types of genotypes, namely CK IG3 129, CK IG3 237, CK IG4 226, CK IG4 229, and CK IG4 235. The observation data were analyzed using analysis of variance (ANOVA) at the 5% level and followed by Duncan's Multiple Range Test (DMRT). The results showed low heritability values in a broad sense, except for the character of plant height which was classified as moderate and the character of weight per fruit and crown width which were classified as high. The broad genetic diversity value was only obtained for the character of crown width. The CK IG3 129 and CK IG4 226 lines have the potential to be tested further in the M3 generation.

Keywords : *chili, mutation, genetic variants, heritability, promising lines.*