

***ANALYSIS OF VARIETY DIVERSITY IN NON-HYBRID BIRD'S EYE
CHILI (*Capsicum frutescens* L.) BASED ON MORPHOLOGICAL AND
YIELD CHARACTERISTICS***

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ABSTRACT

Chili plant breeding is essential to develop high-quality and high-yielding cultivars. This research is an analysis of morphological and yield diversity across nine genotypes of bird's eye chili (*Capsicum frutescens* L.). The study was conducted at the Wedomartani Experimental Farm, Ngemplak, Sleman, Special Region of Yogyakarta. The objectives were to identify the morphological characteristics of several chili genotypes and to determine the best genotype for release as a superior variety. The experimental design used was a Randomized Complete Block Design (RCBD), consisting of four non-hybrid genotypes (F5.372340-7-7H-3, F5.372340-7-28H-11, F5.372340-7-28H-9, and F11.385290-123-6-15-4-1-1-4-4-2), along with five comparison varieties (ORI 212, Feira, Bonita, Hiyung, and Rawita). Data were analyzed using Analysis of Variance (ANOVA) followed by Duncan's Multiple Range Test (DMRT) at a 5% significance level. Genotype F5.372340-7-7H-3 showed superiority in plant height and fruit length. Genotype F11.385290-123-6-15-4-1-1-4-4-2 had the best performance in terms of fruit diameter and fruit weight, making it outstanding in yield potential. Genotype F5.372340-7-28H-11 demonstrated stable performance across several morphological and yield traits. Genotype F5.372340-7-28H-9 had moderate performance across parameters but remained competitive when compared to control varieties. Based on the results, genotype F11.385290-123-6-15-4-1-1-4-4-2 is the most promising candidate for release as a superior variety due to its high yield and favorable morphological traits.

Keywords: *bird's eye chili, diversity analysis, genotype, morphological traits, yield*