ABSTRACT

Mohammad Syaikhuddin, 24020122140161, Vegetative Growth of Bird's Eye Chili Plants (*Capsicum frutescens* L. var. Dewata 43 F1) Under Calcium Fertilizer Application. Under the guidance of Sri Widodo Agung Suedy and Nintya Setiari.

Bird's eye chili (*Capsicum frutescens* L.), as a strategic horticultural commodity, plays a vital role in national food security. Optimizing the growth of bird's eye chili is often hampered by high physical vulnerability and pathogen attacks on the stems and leaves due to weak cell wall structures caused by calcium deficiency. This study aims to determine the effect of calcium fertilizer application and identify the optimal dose on the vegetative growth of bird's eye chili. The study was conducted in a greenhouse Department of Biology, Diponegoro University, from October 2025 to January 2026 using a single-factor completely randomized design (CRD). The methods used included seed sowing, seedling cultivation, and planting of chili pepper seedlings in 20x20 cm polybags 20x20 cm. The treatments consisted of six calcium fertilizer doses: 0 g/L (P0), 5 g/L (P1), 10 g/L (P2), 15 g/L (P3), 20 g/L (P4), and 25 g/L (P5) with four replicates. Calcium fertilizer was applied in the morning once every 10 days until 80 days after planting via foliar spraying until the leaf surfaces were evenly wet. Observation parameters included plant height, stem diameter, number of leaves, leaf length, leaf width, and number of branches. Data were analyzed using ANOVA followed by Duncan's Multiple Range Test (DMRT) at the 95% significance level. The results showed that calcium fertilizer application had a significant effect on plant height, number of leaves, and number of branches, but did not have a significant effect on stem diameter, leaf width, or leaf length. A calcium dose of 10 g/L (P2) consistently yielded the best results for plant height, number of leaves, and number of branches. Foliar application of calcium had a significant effect on improving the vegetative growth of cayenne peppers dose of 10 g/L.

Keywords*: cayenne pepper, nutrient deficiency, foliar application, calcium fertilizer.*