

ABSTRACT

Khoiri Amana Robbi. 24020119120003. **The Effect of Billy Goat Weed (*Ageratum conyzoides* L.) Extract on the Vegetative Growth of Bird's Eye Chili (*Capsicum frutescens* L.).** (Under the guidance of Endah Dwi Hastuti and Sri Darmanti)

Billy goat weed (*Ageratum conyzoides* L.) is an invasive weed commonly found in bird's eye chili (*Capsicum frutescens* L.) cultivation areas and is known to exhibit strong allelopathic activity through secondary metabolites such as phenolics, flavonoids, and alkaloids. This study aimed to determine the effect of varying concentrations of billy goat weed leaf extract on the vegetative growth of cayenne pepper, including plant height, leaf count, root length, and fresh weight. The research was conducted in June 2024 at the Biology Greenhouse, Universitas Diponegoro. It utilized a Completely Randomized Design (CRD) with a single factor consisting of five concentration levels (0% (control), 25%, 50%, 75%, and 100%) and three replications. The extract was prepared by blending 1000 grams of fresh billy goat weed leaves, soaking them in 1000 ml of water for 24 hours, filtering, and subsequently diluting them. The application was carried out by pouring 100 ml of the extract onto 15-day-old cayenne pepper seedlings. Data were analyzed using one-way ANOVA at a 95% significance level, followed by Duncan's Multiple Range Test (DMRT). The results indicated that the billy goat weed leaf extract significantly affected all vegetative growth parameters of the cayenne pepper, with the 75% treatment proving to be the minimum concentration capable of significantly inhibiting plant growth.

Keywords: *allelopathy, phytotoxicity, secondary metabolites*