

ABSTRACT

Anne Primalistyana. 24020119140137. *Morphological Variation and Tannin Content of Kirinyu (Chromolaena odorata) at Different Altitudes in the Semarang Region*. Under the guidance of Sri Utami and Lilih Khotimperwati.

Chromolaena odorata is a plant from the Asteraceae family that is widely distributed in the Semarang region. This plant has various pharmacological benefits, one of which is as a source of tannins, secondary metabolite compounds with important biological activities. Environmental factors, particularly altitude, are suspected to influence morphological variation and tannin content of this plant. This study aims to examine the morphological variations and tannin content of *C. odorata* growing at different altitudes in the Semarang region. Samples were collected from three locations with varying altitudes: Tugu District (5 meters above sea level), Gogik Village, Curug Semirang, Gintungan District (535 meters above sea level), and Dharum Hamlet, Candi Village, Bandungan District (1095 meters above sea level). Morphological variations were observed based on stem, leaf, flower, and achene characteristics using MVSP 3.1 (MultiVariate Statistical Package), while tannin content was analyzed using UV-Vis spectrophotometry at the Laboratory of Plant Structure and Function Biology, Diponegoro University. The results showed significant morphological variations at different altitudes. *C. odorata* growing at higher altitudes tended to have thicker stems (1.85 cm), longer leaves (10.3 cm), larger flower diameters (0.32 cm) and long achenes sizes (0.37 cm) compared to those growing at medium and low altitudes. The tannin content also varied, with the highest levels found in samples from high altitudes, characterized by a dark black color (9.2105 mgTAE/g), followed by samples from medium altitudes with a dark blue-black color (5.8105 mgTAE/g), and low-altitude samples with a greenish-black color (5.4394 mgTAE/g). These differences in tannin levels are presumed to be influenced by environmental factors such as temperature, humidity, light intensity, and soil pH.

This study provides insight into the influence of environmental factors on the morphology and tannin content of *C. odorata*, which can serve as a basis for utilizing this plant for pharmaceutical and ecological purposes.

Keywords: *Chromolaena odorata*, morphological variation, tannin content, altitude, Semarang region.