# RINGKASAN

Budidaya tanaman sering menghadapi permasalahan gangguan gulma yang menyebabkan tumbuhan utama tidak bisa tumbuh secara maksimal, stress, bahkan bisa menyebabkan kematian. Salah satu gulma yang mendominasi lahan pertanian dan perkebunan yaitu babandotan (*Ageratum conyzoides* L.). Upaya yang dapat dilakukan dalam mengendalikan pertumbuhan gulma adalah dengan menggunakan bioherbisida. Kitolod [*Isotoma longiflora* (L.) C. Presl.] dapat dimanfaatkan sebagai bioherbisida karena mengandung senyawa seperti alkaloid, terpenoid, flavonoid, tanin, dan polifenol yang dapat menghambat pertumbuhan tumbuhan lain. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan ekstrak daun kitolod dan konsentrasi yang paling berpengaruh terhadap morfologi dan anatomi daun babandotan.

Penelitian ini dilakukan menggunakan rancangan penelitian Rancangan Acak Lengkap (RAL) dengan variabel bebas 5 perlakuan konsentrasi ekstrak daun kitolod yaitu 0%, 25%, 50%, 75%, dan 100%, masing-masing tiga kali ulangan. Vairabel terikat penelitian ini adalah morfologi dan anatomi daun babandotan. Parameter morfologi yang diamati secara kualitatif yaitu: bangun daun, ujung daun, tepi daun, permukaan daun, ketebalan daging daun, dan warna daun. Parameter anatomi yang diamati secara kuantitatif yaitu ukuran stomata, kerapatan stomata, tebal epidermis dan tebal mesofil. Data kualitatif dianalisis dengan analisis deskriptif. Data kuantitatif yang diperoleh dianalisis menggunakan *Analysis of Variance* (ANOVA) pada taraf 5%, dan dilanjutkan dengan uji *Least Significance Different* (LSD).

Hasil penelitian diperoleh bahwa daun babandotan memiliki karakter bangun daun bulat telur, ujung runcing, tepi beringgit, permukaan berbulu dan rata, ketebalan tipis seperti kertas dan berwarna hijau. Pemberian ekstrak daun kitolod dapat mempengaruhi morfologi daun babandotan, ditunjukkan dengan semakin tinggi konsentrasi ekstrak kitolod yang diberikan pada daun babandotan menunjukkan permukaan daun semakin menggulung dan berbingkul. Pemberian ekstrak daun kitolod juga berpengaruh pada anatomi daun babandotan yang ditunjukkan dengan semakin tinggi konsentrasi ekstrak yang diberikan maka ukuran stomata semakin kecil, kerapatan stomata semakin tinggi, ketebalan epidermis dan mesofil semakin tipis. Konsentrasi ekstrak daun kitolod yang paling berpengaruh adalah konsentrasi 75%.


Kata kunci: *Ageratum conyzoides, bioherbisida, gulma, Isotoma longiflora.*

**SUMMARY**

The cultivation of plants often faces the problem of weed pests, which causes the main plants not to be able to grow optimally, causes stress, and can even cause death. One of the weeds that dominate agricultural and plantation land is Babandotan (*Ageratum conyzoides* L.). Efforts that can be made in controlling weed growth are by using bioherbicide. Kitolod [*Isotoma longiflora* (L.) C. Presl.] is a weed plant that can be used as a bioherbicide. Kitolod produces compounds such as alkaloids, terpenoids, flavonoids, tannins, and polyphenols that can inhibit the growth of other plants. This study aims to determine the effect of adding kitolod leaf extract on the morphology and anatomy of the babandotan leaves and know the concentration of the kitolod leaf extract that most influence the morphology and anatomy of the babandotan leaves.

This study was conducted with a completely randomized design experimental method (CRD) with the independent variables of 5 treatments for the concentration of kitolod leaf extract 0%, 25%, 50%, 75%, and 100%, replicated three times. The dependent variable of this study was the morphology and anatomy of the Babandotan leaves. Observations were made qualitatively and quantitatively. Morphological parameters observed are leaf shape, leaf tip, leaf edges, leaf surfaces, thickness of leaf meat, and leaf color. Anatomical parameters observed are stomata size, stomata density, epidermal thickness, and mesophyll thickness. Qualitative data were analyzed with descriptive analysis. The quantitative data obtained were analyzed using Analysis of Variance (ANOVA) at a level of 5% and continued with the Least Significance Different (LSD) test.

The results obtained showed that the babandotan leaves have an ovoid leaf wake, pointed end, rising edge, furry and flat surface, thin thickness such as paper, and green. The addition of kitolod leaf extract can affect the morphology of babandotan leaves, indicated by the higher the concentration of the extract given, babandotan leaves became more rolled and crimped. The addition of kitolod extract also affects the anatomy of the babandotan leaves, which is indicated by the higher the extract concentration is given, stomata size gets smaller, stomata density gets higher, the thickness of the epidermis and the mesophyll gets thinner. The most effective concentration of kitolod leaf extract is 75%concentration.

Keywords: *Ageratum conyzoides, bioherbicide, weed, Isotoma longiflora.*