

ABSTRAK

PERTUMBUHAN TANAMAN KANGKUNG (*Ipomoea reptans* *Poir*) DENGAN PERLAKUAN AIR DETERJEN KIMIA DAN SURFAKTAN NABATI

Deterjen kimia mengandung fosfat dan surfaktan sintetis yang berbahaya bagi lingkungan, terutama kualitas tanah dan air. Fosfat dapat menyebabkan eutrofikasi, menurunkan kadar oksigen, dan mengganggu kehidupan akuatik. Surfaktan sintetis dan bahan kimia lainnya merusak struktur tanah, mengurangi porositas, dan mengganggu keseimbangan mikroorganisme yang penting untuk siklus nutrisi dan dekomposisi sehingga kesuburan tanah dan produktivitas tanaman menurun, penyerapan air dan nutrisi oleh akar terhambat, dan tanaman mengalami stres dan pertumbuhan yang terhambat. Surfaktan nabati mengandung bahan alami yang mudah terurai dan tidak meninggalkan residu berbahaya, sehingga lebih aman bagi lingkungan dan pertumbuhan tanaman. Tujuan penelitian untuk mengetahui respon pertumbuhan tanaman kangkung darat (*Ipomoea reptans* Poir) dan uji pH organoleptik dan stabilitas busa pada perlakuan deterjen kimia dan surfaktan nabati buah lerak (*Sapindus rarak* DC) dan lidah buaya (*Aloe barbandensis* Miller). Penelitian menggunakan metode Rancangan Acak Kelompok (RAK) dengan 3 jenis perlakuan dan 5 ulangan setiap perlakuan. Total ulangan sebanyak 20 ulangan. Parameter yang diamati hari muncul tunas tinggi tanaman, jumlah daun, luas daun, berat basah tanaman. Data dianalisis menggunakan (ANOVA) dan uji Duncan pada taraf 5%. Hasil respon pertumbuhan terbaik pada pertumbuhan tanaman kangkung (*Ipomoea reptans* Poir) secara morfologi terdapat pada perlakuan P4 surfaktan lidah buaya (*Aloe barbandensis* Miller) berbeda nyata terhadap perlakuan lainnya yang ditunjukkan dengan, hari muncul tunas lebih cepat dan nilai rata-rata tertinggi pada setiap parameter tinggi tanaman, jumlah daun, luas daun dan berat basah. Hasil penelitian menunjukkan deterjen pH lidah buaya memenuhi standar baku mutu, sedangkan surfaktan buah lerak dan kimia tidak memenuhi standar mutu.

Kata Kunci : Deterjen, *Ipomoea reptans*, Pertumbuhan, Organoleptik

ABSTRACT

GROWTH OF WATER SPINACH PLANT (*Ipomoea reptans* Poir) WITH CHEMICAL DETERGENT WATER TREATMENT AND VEGETABLE SURFACTANT

*Chemical detergents contain phosphates and synthetic surfactants that are harmful to the environment, especially soil and water quality. Phosphate can cause eutrophication, reduce oxygen levels, and disrupt aquatic life. Synthetic surfactants and other chemicals damage soil structure, reduce porosity, and disrupt the balance of microorganisms that are important for nutrient cycling and decomposition, so that soil fertility and plant productivity decrease, water and nutrient absorption by roots is inhibited, and plants experience stress and stunted growth. Plant surfactants contain natural ingredients that are easily decomposed and do not leave harmful residues, making them safer for the environment and plant growth. The purpose of this study was to determine the growth response of land spinach (*Ipomoea reptans* Poir) and organoleptic pH tests and foam stability in the treatment of chemical detergents and plant surfactants of soapberry fruit (*Sapindus rarak* DC) and aloe vera (*Aloe barbandensis* Miller). The study used the Randomized Block Design (RBD) method with 3 types of treatments and 5 replications for each treatment. A total of 20 replications. Parameters observed were the day the shoots appeared, plant height, number of leaves, leaf area, and wet weight of the plant. Data were analyzed using (ANOVA) and Duncan's test at the 5% level. The best growth response results in the growth of kale (*Ipomoea reptans* Poir) morphologically were found in the P4 treatment of aloe vera surfactant (*Aloe barbandensis* Miller) which was significantly different from other treatments as indicated by, the day the shoots appeared faster and the highest average value for each parameter of plant height, number of leaves, leaf area and wet weight. The results showed that the aloe vera pH detergent met the quality standard, while the soapberry fruit and chemical surfactants did not meet the quality standard.*

Keywords: Detergent, *Ipomoea reptans* Poir, Growth, pH, Organoleptic