ABSTRAK

RESPONS PERTUMBUHAN VEGETATIF TEBU (*Saccharum officinarum* L.) TERHADAP KOMBINASI DOSIS ASAM HUMAT DAN NPK PADA TANAH ULTISOL

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Produktivitas tebu (*Saccharum officinarum* L.) sangat dipengaruhi oleh efisiensi pemupukan dan kualitas tanah, sementara penggunaan pupuk anorganik dan mekanisasi secara terus-menerus berpotensi menurunkan kualitas tanah serta menekan efisiensi serapan hara. Penelitian ini bertujuan mengevaluasi pengaruh asam humat dan pupuk NPK terhadap pertumbuhan vegetatif awal tanaman tebu serta implikasinya terhadap efisiensi pemupukan dan perbaikan sifat tanah. Penelitian dilaksanakan pada Juli–Oktober 2025 di Laboratorium Lapangan Terpadu Fakultas Pertanian Universitas Lampung menggunakan Rancangan Acak Kelompok faktorial 3×3, terdiri atas tiga dosis asam humat (0, 10, dan 20 kg ha^{-1}) dan tiga taraf pupuk NPK (0%, 50%, dan 100% dosis standar). Bahan tanam berupa bagal tebu Varietas GMP 7 yang ditanam pada *polybag* dengan metode *single bud planting* setelah perlakuan air panas, sedangkan aplikasi asam humat dilakukan dengan cara dikocor saat tanam dan 35 hst, serta analisis tanah dilakukan sebelum dan sesudah perlakuan. Hasil penelitian menunjukkan bahwa pemberian asam humat 10 kg ha^{-1} secara konsisten meningkatkan perkembangan akar, jumlah anakan, dan biomassa tanaman. Kombinasi asam humat 10 kg ha^{-1} dengan 50% dosis NPK mampu menghasilkan pertumbuhan vegetatif yang setara dengan 100% NPK. Dengan demikian penggunaan asam humat berpotensi meningkatkan efisiensi pemupukan dan mendukung pengelolaan hara yang lebih berkelanjutan pada budidaya tebu.

Kata kunci: Tebu, asam humat, pupuk NPK, pertumbuhan vegetatif

ABSTRACT

VEGETATIVE GROWTH RESPONSE OF SUGARCANE (Saccharum officinarum L.*) TO COMBINED APPLICATION OF HUMIC ACID AND NPK IN ULTISOL*

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Sugarcane (Saccharum officinarum L.*) productivity is strongly influenced by fertilization efficiency and soil quality, whereas the continuous use of inorganic fertilizers and intensive mechanization may deteriorate soil properties and reduce nutrient uptake efficiency. This study aimed to evaluate the effects of humic acid and NPK fertilizer on the early vegetative growth of sugarcane and to assess their implications for fertilizer efficiency and soil property improvement. The experiment was conducted from July to October 2025 at the Integrated Field Laboratory, Faculty of Agriculture, University of Lampung, using a 3 × 3 factorial randomized block design consisting of three rates of humic acid (0, 10, and 20 kg ha^{-1}) and three levels of NPK fertilizer (0%, 50%, and 100% of the recommended dose). Sugarcane setts of the GMP 7 variety grown in polybags using the single bud planting method following hot water treatment. Humic acid was applied by soil drenching at planting and at 35 days after planting and soil analyses were conducted before and after treatment application. The results showed that the application of 10 kg ha^{-1} humic acid consistently increased root development, tiller number, and plant biomass. Furthermore, the combination of 10 kg ha^{-1} humic acid with 50% of the recommended NPK dose produced vegetative growth comparable to that obtained with 100% NPK application. These findings indicate that humic acid application has the potential to improve fertilizer use efficiency and support more sustainable nutrient management in sugarcane cultivation.*

Keywords: Sugarcane, humic acid, NPK fertilizer, vegetative growth