

**APLIKASI BIOCHAR (*Biomassa Charcoal*) BAMBU DAN PUPUK
UREA DALAM MEMPERBAIKI SIFAT KIMIA ULTISOL DAN
MENINGKATKAN PRODUKSI TANAMAN JAGUNG MANIS
(*Zea mays saccharata* Sturt)**

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APLIKASI BIOCHAR (*Biomassa Charcoal*) BAMBU DAN PUPUK UREA DALAM MEMPERBAIKI SIFAT KIMIA ULTISOL DAN MENINGKATKAN PRODUKSI TANAMAN JAGUNG MANIS (*Zea mays saccharata* Sturt)

Abstrak

Salah satu cara untuk memperbaiki sifat kimia ultisol adalah dengan penambahan bahan organik dan pupuk untuk mendukung pertumbuhan tanaman. Penelitian ini bertujuan untuk mengetahui interaksi biochar bambu dengan pupuk Urea dalam memperbaiki sifat kimia Ultisol dan meningkatkan produksi jagung manis (*Zea mays saccharata* Sturt). Penelitian ini dilaksanakan di UPT Kebun Percobaan dan Laboratorium Kimia Tanah Fakultas Pertanian Universitas Andalas Padang dengan menggunakan Rancangan Acak Kelompok (RAK) faktorial 5 x 3 dan 2 kelompok dengan perlakuan biochar bambu takaran 0 (kontrol), 5, 10, 15 dan 20 ton/ha serta pupuk Urea dengan takaran 0, 0.5 dan 1 kali rekomendasi. Dari hasil penelitian diperoleh kesimpulan bahwa (1) Pemberian Biochar bambu pada takaran 20 ton/ha dan pupuk Urea 1 kali rekomendasi berinteraksi secara nyata dalam meningkatkan KTK sebesar 24.3 cmol/kg dan N-total sebesar 0.37 % jika dibandingkan dengan kontrol serta mampu meningkatkan serapan hara dan produksi tanaman jagung manis dengan berat tongkol jagung tertinggi sebesar 22.89 ton/ha (2) Pemberian biochar bambu takaran 20 ton/ha pada beberapa takaran pupuk Urea mampu memperbaiki sifat kimia Ultisol dimana terjadi peningkatan pH sebesar 0.52 unit, C-organik sebesar 1.89%, KTK sebesar 24.3 cmol/kg, N-total sebesar 0.37 %, P-tersedia sebesar 5.67 ppm, K-dd sebesar 0.26 cmol/kg, Ca-dd sebesar 2.59 cmol/kg, Mg-dd sebesar 1.07 cmol/kg jika dibandingkan tanpa pemberian biochar bambu serta berpengaruh terhadap pertumbuhan dan produksi tanaman jagung manis (3) Pemberian pupuk Urea 1 kali rekomendasi pada beberapa takaran biochar bambu memperoleh nilai N-total Ultisol tertinggi dan mengalami peningkatan sebesar 0.37 % jika dibandingkan dengan tanpa pemberian pupuk Urea dan mampu meningkatkan kadar hara N tanaman sebesar 3.51 % serta pertumbuhan dan produksi tanaman.

Kata kunci : *biochar, bambu, urea, ultisol, jagung manis*

APPLICATION OF BAMBOO BIOCHAR AND UREA FERTILIZER TO IMPROVE CHEMICAL PROPERTIES OF ULTISOL AND TO INCREASE YIELD OF SWEET CORN (*Zea mays saccharata* Sturt)

Abstract

One way to improve the chemical properties of Ultisol is by adding organic matter and fertilizers to support plant growth. This study aims to determine the interaction between bamboo biochar and Urea fertilizer in improving the chemical properties of Ultisol and increasing sweet corn (*Zea mays saccharata* Sturt) yield. This research was conducted at Experimental Gardens and Laboratory of Soil Chemistry, Faculty of Agriculture, Andalas University, Padang using a factorial 5 x 3 and 2 group Randomized Block Design with the treatment of bamboo biochar with doses of 0 (control), 5, 10, 15 and 20 tons/ha and urea fertilizer with doses of 0, 0.5 and 1 times the recommendation. From the results of the study, it was concluded that (1) The application of bamboo biochar at a dose of 20 tons/ha and Urea fertilizer once recommended interacted significantly and showed the best effect on the chemical properties of Ultisols such as CEC and N-total, where the CEC value increased by 24.3 cmol/kg and N-total of 0.37% when compared with control and was able to increase nutrient uptake and yield of sweet corn with the highest corncob weight gain of 22.89 tons/ha (2) The application of bamboo biochar at a dose of 20 tons/ha at several doses of Urea fertilizer was able to have a significant effect on the observed chemical properties of Ultisol and gave the best effect which was able to increase the pH value by 0.52 units, C-organic by 1.89%, CEC by 24.3 cmol/kg, N-total of 0.37 %, P-available of 5.67 ppm, exchangeable K of 0.26 cmol/kg, exchangeable Ca of 2.59 cmol/kg, exchangeable Mg of 1.07 cmol/kg when compared without bamboo biochar and affect the growth and yield of sweet corn plants (3) The application of Urea fertilizer 1 time recommended at several doses of bamboo biochar was able to increase the N-total value of Ultisol and obtain the highest N-total value, which was 0.37% when compared with no urea fertilizer application and was able to increase the N-nutrient levels of plants by 3.51% as well as plant growth and yield.

Keywords : *biochar, bamboo, urea, ultisol, sweet corn*