THE EFFECT OF COCONUT SHELL BIOCHAR SOAKED WITH FERMENTED SHEEP URINE ON THE AVAILABILITY OF P AND K NUTRIENTS IN ENTISOL

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ABSTRACT

Entisols are soils with low nutrient elements and water availability. Entisol soil issues can be resolved with fermented sheep urine and coconut shell biochar. The purpose of this research is to determine the effect of giving coconut shell biochar soaked with fermented sheep urine on the availability of P and K nutrients in Entisols. This research be carried out at the Greenhouse of the Faculty of Agriculture, UPN "Veteran" Yogyakarta and the Laboratory of Plant Nutrition and Fertilizer Technology, UPN "Veteran" Yogyakarta. The method used in this research was a Completely Randomized Design (CRD) 3x4 + 1 control factorial with two factors. The first factor was a dose of coconut shell biochar (B) consists of 3 levels B1=10 tons/ha, B2=15 tons/ha, B3=20 tons/ha. The second factor was the soaking time of biochar in fermented sheep urine (U) at a dose of 50 ml/L consisting of 4 levels, U0 = without immersion, U1= 3 hours immersion, U2 = 6 hours immersion, U3 = 12 hours immersion. In this experiment, Entisol was treated as the control (B0U0). The research parameters were pH, available-P, available-K, organic-C, CEC. The results were analyzed by means of variance at 5% level, orthogonal contrast test between treatments and controls and DMRT test at 5% level between treatments. There was an interaction between the dose of coconut shell biochar and the soaking time with fermented sheep urine. The B3U3 treatment markedly increased available P to 43,67 ppm, available K to 60,95 ppm, COC to 1,59 cmol(+)kg^{-1}, organic-C to 0,77% in the B2U2 treatment. There was no significant difference between the control treatment and the combined treatment with biochar dosage and biochar soaking time in fermented sheep urine at soil pH.

Keywords: coconut shell biochar, Entisol, P nutrient, K nutrient, fermented sheep urine