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Pengaruh Pemberian Biochar Tongkol Jagung dan Bentonit Teraktivasi Terhadap Serapan N dan Kandungan Protein Jagung (*Zea mays* L.) di Tanah Lahan Kering Madura.

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ABSTRAK

Penelitian ini dilakukan dengan tujuan untuk mempelajari pengaruh formulasi pembenah tanah (biochar tongkol jagung dan bentonit teraktivasi) terhadap kandungan N tanaman, serapan N, kandungan protein, pertumbuhan dan produksi tanaman jagung (*Zea mays* L.). Percobaan ini disusun dalam rancangan acak lengkap faktorial, terdiri atas 2 faktor perlakuan aplikasi pembenah tanah yaitu biochar tongkol jagung (B) dan bentonit teraktivasi (T). Masing-masing faktor terdiri atas 2 taraf untuk aplikasi biochar tongkol jagung (5 dan 10 ton/ha) dan 3 taraf untuk aplikasi bentonit teraktivasi (0, 5 dan 10 ton/ha). Dari kombinasi kedua faktor tersebut didapatkan 6 perlakuan kombinasi yaitu 5 ton/ha biochar (B1T0), 5 ton/ha biochar dan 5 ton/ha bentonit (B1T1), 5 ton/ha biochar dan 10 ton/ha bentonit (B1T2), 10 ton/ha biochar (B2T0), 10 ton/ha biochar dan 5 ton/ha bentonit (B2T1) dan 10 ton/ha biochar dan 10 ton/ha bentonit (B2T2). Hasil penelitian menunjukkan bahwa pemberian biochar tongkol jagung dan bentonit teraktivasi berpengaruh tidak nyata terhadap kandungan N tanaman, serapan N, kandungan protein, pertumbuhan dan produksi tanaman jagung, namun berpengaruh nyata terhadap tinggi tanaman (28 dan 35 HST), luas daun (42 HST), rasio akar tajuk dan bobot kering biji per tanaman. Pada perlakuan 10 ton/ha biochar (B2T0) cenderung meningkatkan kandungan N tanaman sebesar 17,91% dan pada perlakuan 10 ton/ha biochar dan 10 ton/ha bentonit (B2T2) cenderung meningkatkan serapan N sebesar 27,38% serta kandungan protein biji jagung berkisar 9,91-10,49% cenderung tertinggi pada perlakuan 5 ton/ha biochar (B1T0), yang cenderung meningkatkan kandungan protein sebesar 10,53% dibandingkan perlakuan 5 ton/ha biochar dan 10 ton/ha bentonit (B1T2).

Kata Kunci : Jagung, Bentonit, Biochar, Serapan N, Protein

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Effect of Application of Biochar on Corncobs and Activated Bentonite on N Uptake and Protein Content of Corn (*Zea mays* L.) in Madura Dry Land.

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ABSTRACT

The objective of this study was to investigate the effect of soil amendments (corn cob biochar and activated bentonite) on plant N content, N uptake, protein content, growth and production of maize (*Zea mays* L.). This experiment was arranged on a factorial completely randomized design consisting of two factors, namely corn cob biochar (B) and activated bentonite (T). Corn cob biochar consisted of 2 level of application (5 and 10 ton/ha) and activated bentonite was applied at 0, 5 and 10 ton/ha. From the combination of these two factors, there were six combination treatments, namely 5 ton biochar/ha (B1T0), 5 ton biochar/ha and 5 ton bentonite/ha (B1T1), 5 ton biochar/ha and 10 ton bentonite/ha (B1T2), 10 ton biochar/ha (B2T0), 10 ton biochar/ha and 5 ton bentonite/ha (B2T1) and 10 ton biochar/ha and 10 ton bentonite/ha (B2T2). The results showed that the application of corn cob biochar and activated bentonite had no significant effect on plant N content, N uptake, protein content, growth and production of maize, except on plant height (28 and 35 DAP), leaf area (42 DAP), root shoot ratio and seed dry weight of plant. The plant N content on the 10 ton biochar/ha (B2T0) and N uptake on the 10 ton biochar/ha and 10 ton bentonite/ha (B2T2) respectively tended to increase up to 17,91% and 27,38% and the protein content of seed corn was from 9,91% to 10,49% tended to be highest on the 5 ton biochar/ha (B1T0) treatment, which tended to increase the protein content up to 10,53% compared on the 5 ton biochar/ha and 10 ton bentonite/ha (B1T2) treatment.

Keywords : Corn, Bentonite, Biochar, N Uptake, Protein