

PENGARUH SUBSTITUSI TEPUNG CANGKANG TELUR PADA MEDIA TUMBUH BERBAHAN SLUDGE EKSKRETA AYAM TERHADAP PRODUKSI JAMUR TIRAM

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan tepung cangkang telur untuk substitusi kapur terhadap pertumbuhan dan produktivitas jamur tiram putih (*Pleurotus florida*) dengan memanfaatkan *sludge* ekskreta ayam. Bahan yang digunakan adalah ekskreta ayam, tepung cangkang telur, air, serbuk gergaji sengon, kapur, dan bibit jamur tiram putih. Penelitian ini terdiri dari empat tahap, yaitu tahap penjemuran *sludge* biogas ekskreta ayam, pembuatan cangkang telur, pembuatan media jamur tiram, dan tahap analisis komposisi kimia, dan pengukuran pertumbuhan dan produksi jamur. Media jamur dibuat dengan 5 perlakuan, yaitu SP₀, SP₁, SP₂, SP₃, SP₄, dan masing-masing perlakuan dibuat 3 replikasi. Semua perlakuan menggunakan *sludge* ekskreta ayam sebagai bahan dasarnya. Kontrol (SP₀) adalah perlakuan dengan menggunakan kapur (2%); SP₁ tepung cangkang telur (0,5%) dan kapur (1,5%); SP₂ tepung cangkang telur (1%) dan kapur (1%); SP₃ tepung cangkang telur (1,5%) dan kapur (0,5%); sedangkan SP₄ tepung cangkang telur (2%). Parameter kimia yang diamati meliputi kadar air, serat kasar, bahan organik (BO), karbon organik (C), nitrogen total (N), fosfor total (P₂O₅), C/N rasio, dan kalsium. Variabel produktivitas jamur tiram putih meliputi jumlah tudung jamur, panjang tangkai, diameter tudung jamur, berat segar jamur, jumlah panen dan umur panen jamur pertama kali. Data yang diperoleh dianalisis statistik menggunakan Rancangan Acak Lengkap (RAL) pola searah, kemudian apabila terdapat data yang berbeda nyata maka dilanjutkan dengan uji *Duncan's new Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa *sludge* biogas ekskreta ayam dan tepung cangkang telur 0,5% (SP₁) dan 2% (SP₄) dapat meningkatkan nutrisi dalam media tanam jamur tiram putih, yaitu kadar nitrogen total 1,35% dan fosfor 0,74%. Penambahan tepung cangkang telur 1%, 1,5%, dan 2% secara berurutan pada media tanam jamur tiram putih mampu meningkatkan jumlah tudung dan menurunkan panjang tangkai jamur tiram. Dapat disimpulkan bahwa tepung bekicot pada *sludge* biogas ekskreta ayam berpotensi sebagai bahan pengganti kapur serta meningkatkan nutrisi dalam media jamur dan produksi jamur tiram putih.

Kata Kunci : *Sludge* ekskreta ayam, Tepung cangkang telur, Media tanam, Jamur tiram putih

THE EFFECT OF THE SUBSTITUTION EGGSHELL FLOUR ON THE CHICKEN MANURE BIOGAS *SLUDGE* GROWTH MEDIA OF OYSTER MUSHROOM PRODUCTION

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ABSTRACT

This research was aimed to the effect of eggshell flour addition to substitute lime as mineral source on the mushroom media (*baglog*) with chicken manure biogas *sludge* inside and increased of white oyster mushroom (*Pleurotus florida*) productivity. Chicken manure biogas *sludge* has been taken into biogas tube, then dried under the sunlight. This research was divided into four parts: *sludge* drying, eggshell flouring, oyster mushroom media making, and analysis of mushroom media nutrien, and measuring growth and productivity of mushroom, This research was divided into five treatments: SP₀, SP₁, SP₂, SP₃ and SP₄, each treatment consist of 3 replications. Lime (2%) has used for control (SP₀) as mushroom culture media; SP₁ of eggshell flour (0,5%); SP₂ of eggshell flour (1%); SP₃ of eggshell flour (1,5%), and SP₄ of eggshell flour (2%). Each treatment was tested with chemical analysis (water content, crude fiber, organic material, C-organic, N-matter, P-matter, calcium and the C/N ratio). The variables of white oyster mushroom productivity such as harvesting period, fresh weight per harvest, number umbrella per cluster, stalk length, number of harvest and diameter of umbrella mushroom. The data obtained were statistically analyzed using one-way Complete Randomized Design (CRD) and followed subsequently by Ducan's New Multiple Range Test (DMRT). The results showed that the addition of 0,5% (SP₁) and 2% (SP₄) eggshell flour on the white oyster mushroom media was increased (P <0,01) nutrients in mushroom media N-matter 1,35% and phosphorus content 0,74%. The addition of eggshell flour (1, 1,5, and 2%) on the mushroom media sequently was able to accelerate increased the number of oyster mushroom umbrella and decrease the number of oyster mushroom stalk length. It can be concluded that an addition of eggshell flour on white oyster mushroom media can be potentially used as lime substitute as mineral source and increased nutrients in mushroom media of white oyster mushroom production.

Keywords: chicken manure biogas *sludge*, eggshell flour, white oyster mushroom, and mushroom media