

KARAKTERISTIK FORMULASI KOMPOS BERBASIS LIMBAH KANDANG AYAM *CLOSED HOUSE*

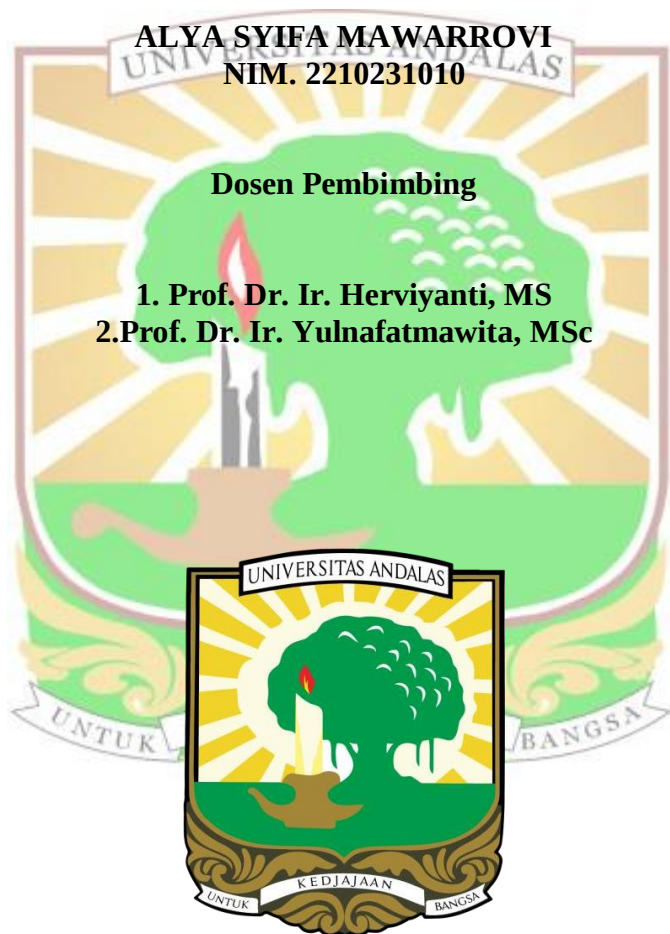
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**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
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2026**

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ABSTRAK

Pesatnya perkembangan industri perunggasan ayam dengan sistem *closed house*, meningkatkan volume limbah yang dihasilkan. Limbah kandang ayam *closed house* merupakan bahan organik yang berpotensi dimanfaatkan sebagai bahan baku kompos yang terdiri dari campuran kotoran ayam, sisa pakan, dan alas kandang berupa sekam kayu. Keberadaan serbuk gergaji yang tersusun atas selulosa, hemiselulosa, dan lignin menyebabkan proses dekomposisi berlangsung lebih lama. Salah satu alternatif pemanfaatan komponen alas kandang dari limbah kandang ayam *closed house* adalah dengan mengolahnya menjadi biochar melalui proses pirolisis. Penelitian ini bertujuan untuk mengkaji karakteristik formulasi kompos berbasis limbah kandang ayam *closed house*. Penelitian menggunakan Rancangan Acak Lengkap (RAL) yang terdiri atas empat perlakuan, yaitu 95% LKACH + 5 % biochar LKACH, 90% LKACH + 10% biochar LKACH, 85% LKACH + 15% biochar LKACH, dan 80% LKACH + 20% biochar LKACH. Hasil penelitian menunjukkan penambahan biochar mampu meningkatkan kualitas kompos. Formulasi terbaik diperoleh pada perlakuan 80% LKACH + 20% biochar LKACH dengan nilai pH (9,1), EC ($1,79 \text{ dSm}^{-1}$), KTK ($135,16 \text{ cmol/kg}$), C-Organik (23,76%), N-Total (2,74%), C/N rasio (8,66) dan KA (14%). Hasil SEM menunjukkan, formulasi kompos mempunyai struktur permukaan yang lebih berpori dan terbuka sedangkan hasil FTIR menunjukkan keberadaan gugus fungsi aktif O-H, C=O, C-O dan struktur aromatik yang lebih kuat, sehingga berpotensi dikembangkan sebagai amelioran tanah.

Kata kunci : biochar, *closed house*, kompos, limbah kandang ayam



CHARACTERISTICS OF COMPOST FORMULATION BASED ON CLOSED HOUSE CHICKEN COOP WASTE

ABSTRACT

The rapid development of the poultry industry using closed house systems has increased the volume of waste generated. Closed house chicken coop waste is an organic material with the potential to be used as raw material for compost, consisting of a mixture of chicken manure, leftover feed, and wood husk bedding. The presence of wood husk, which is composed of cellulose, hemicellulose, and lignin, causes the decomposition process to take longer. One alternative use of bedding components from closed house chicken coop waste is to process it into biochar through pyrolysis. This study aims to examine the characteristics of a compost formulation based on closed house chicken coop waste. The study used a Completely Randomized Design (CRD) consisting of four treatments, namely 95% CHCL + 5% CHCL biochar, 90% CHCL + 10% CHCL biochar, 85% CHCL + 15% CHCL biochar, and 80% CHCL + 20% CHCL biochar. The results showed that the addition of biochar was able to improve the quality of compost. The best formulation was obtained in the treatment of 80% LKACH + 20% LKACH biochar with pH (9.1), EC (1.79 dSm⁻¹), CEC (135.16 cmol/kg), C-Organic (23.76%), total N (2.74%), C/N ratio (8.66) and moisture (14%). SEM results indicate that the compost formulation has a more porous and open surface structure, while FTIR results indicate the presence of active functional groups O-H, C=O, C-O, and a stronger aromatic structure, making it potentially suitable for development as a soil ameliorant.

Keywords: biochar, closed house, compost, chicken coop waste

