

ABSTRAK

ANALISIS KOMPOSISI KIMIA *COCOPEAT* DARI SABUT KELAPA SEBAGAI MEDIA TANAM ALTERNATIF

Brian Said Muria, 2026, 55 Halaman, 8 Tabel, 12 Gambar, 4 Lampiran

Sabut kelapa merupakan limbah pertanian yang dapat dimanfaatkan sebagai media tanam alternatif dalam bentuk *cocopeat*. Namun, kandungan lignin yang tinggi dapat menghambat dekomposisi dan ketersediaan unsur hara. Penelitian ini bertujuan untuk menganalisis pengaruh delignifikasi menggunakan natrium hidroksida (NaOH) dan fermentasi menggunakan Effective Microorganisms 4 (EM4) terhadap kandungan lignin serta unsur hara nitrogen (N), fosfor (P), dan kalium (K) pada *cocopeat*. Delignifikasi dilakukan menggunakan variasi konsentrasi NaOH 3%, 5%, dan 7%, kemudian dilanjutkan dengan fermentasi selama 10 hari menggunakan variasi volume EM4 0 ml, 2 ml, 4 ml, dan 6 ml. Hasil penelitian menunjukkan bahwa peningkatan konsentrasi NaOH mampu menurunkan kadar lignin, dengan kadar lignin terendah sebesar 37,6% pada perlakuan NaOH 7%. Penambahan EM4 meningkatkan kandungan unsur hara pada seluruh perlakuan. Hasil terbaik diperoleh pada kombinasi NaOH 7% dan EM4 6 ml dengan kadar nitrogen 0,9741%, fosfor 0,1188%, dan kalium 1,5035%. Seluruh perlakuan memenuhi standar minimum SNI 19-7030-2004 untuk nitrogen dan kalium, sedangkan standar fosfor terpenuhi pada perlakuan NaOH 7% dengan EM4 4 ml dan 6 ml. Kombinasi delignifikasi dan fermentasi terbukti meningkatkan kualitas *cocopeat* sebagai media tanam.

Kata Kunci: *cocopeat*, delignifikasi, fermentasi, EM4, NPK.

ABSTRACT

ANALYSIS OF THE CHEMICAL COMPOSITION OF COCOPEAT FROM COCONUT HUSKS AS AN ALTERNATIVE GROWING MEDIUM

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Coconut coir is an agricultural waste that can be utilized as an alternative growing medium in the form of cocopeat. However, its high lignin content may inhibit decomposition processes and reduce nutrient availability. This study aimed to analyze the effect of delignification using sodium hydroxide (NaOH) and fermentation using Effective Microorganisms 4 (EM4) on lignin content and nutrient levels of nitrogen (N), phosphorus (P), and potassium (K) in cocopeat. Delignification was carried out using NaOH concentrations of 3%, 5%, and 7%, followed by a 10-day fermentation process with EM4 volumes of 0 ml, 2 ml, 4 ml, and 6 ml. The results showed that increasing NaOH concentration reduced lignin content, with the lowest lignin level of 37.6% obtained at the 7% NaOH treatment. The addition of EM4 increased nutrient contents in all treatments. The best result was achieved with the combination of 7% NaOH and 6 ml EM4, producing nitrogen, phosphorus, and potassium contents of 0.9741%, 0.1188%, and 1.5035%, respectively. All treatments met the minimum requirements of SNI 19-7030-2004 for nitrogen and potassium, while the phosphorus standard was achieved in the 7% NaOH treatment with 4 ml and 6 ml EM4. The combination of delignification and fermentation was proven to improve the quality of cocopeat as a growing medium.

Keywords: *cocopeat, delignification, fermentation, EM4, NPK.*