

**KARAKTERISTIK PUPUK ORGANIK LIMBAH PADAT INDUSTRI PULP  
PLUS ARANG SERBUK GERGAJI  
(Characteristics of Organic Fertilizer from Pulp-Mill Sludge Added with  
Sawdust Charcoal)**

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**ABSTRACT**

This experiment was conducted on fermenting the sludge from a pulp mill into organic fertilizer. The pulp mill uses raw material of mangium (*Acacia mangium*) wood. The composting process was assisted by adding to the sludge decomposing-activator (10%). Besides, sawdust charcoal was also added (10%) to the sludge. The mixture of sludge, decomposing activator, and sawdust charcoal was rigorously agitated until homogenous, and subsequently let for 60 days thereby ensuring the process to completion. Afterwards, the resulting organic fertilizer was dried, crushed to tiny pieces, sieved, and then ready for use. The organic fertilizer revealed specific characteristics, i.e. moisture content at 32.90-39.40%, pH 6.70-6.90, C/N ratio 18.70-23.70, C organic 24.17-28.26%, N 1.19-1.29%, total P<sub>2</sub>O<sub>5</sub> 0.53-0.63%, total CaO 0.27-0.34%, total MgO 0.26-0.27%, total K<sub>2</sub>O 0.63-0.68%, and cation-exchange capacity 29.34-32.44 meq/100 g. Heavy metal content in the fertilizer consisted of Pb 0.07-0.09 ppm and Cd 0.02 ppm. To improve quality of the organic fertilizer, it should be mixed with consecutively ectomycorhiza spore and clay soil.

Keywords : pulp-mill sludge, decomposing activator, organic fertilizer, sawdust charcoal, quality improvement<sup>2</sup>

**ABSTRAK**

Penelitian ini mengemukakan proses pembuatan pupuk organik dari limbah padat industri pulp dengan bahan baku kayu mangium (*Acacia mangium*). Proses pengomposan berlangsung dengan adanya penambahan aktivator sebesar 10% pada limbah padat industri pulp. Selain itu ditambahkan juga arang serbuk gergaji sebesar 10%. Campuran limbah padat, aktivator dan arang serbuk gergaji diaduk sampai homogen dan dibiarkan selama 60 hari. Setelah selesai proses pengomposan, pupuk organik plus arang serbuk gergaji dijemur, digiling dan disaring, akhirnya siap untuk digunakan. Dari penelitian pembuatan pupuk organik plus arang serbuk gergaji diperoleh hasil sebagai berikut: kadar air 32,90-39,40%; pH 6,70-6,90; nisbah C/N 18,70-23,70; C organik 24,17-28,26%; N 1,19-1,29%; P<sub>2</sub>O<sub>5</sub> total 0,53-0,63%; CaO total 0,27-0,34%; MgO total 0,26-0,27%; K<sub>2</sub>O total 0,63-0,68% dan KTK 29,34-32,44 meq/100 g. Kandungan logam berat Pb 0,07-0,09 ppm dan Cd 0,02 ppm. Untuk meningkatkan kualitas pupuk organik plus arang serbuk gergaji dilakukan penambahan spora ektomikoriza dan tanah liat yang kemudian dicetak berbentuk tablet.

Kata kunci : limbah padat industri pulp, aktivator pengomposan, pupuk organik, arang serbuk gergaji, peningkatan kualitas