

ANALISIS KARAKTERISTIK ENERGI BAMBU ATER (*Gigantochloa atter*) BERDASARKAN TEMPAT TUMBUH DAN ARAH AKSIAL YANG BERBEDA

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INTISARI

Energi terbarukan dari biomassa hutan dapat dimanfaatkan sebagai pengganti bahan bakar fosil. Salah satu biomassa dengan laju pertumbuhan yang tinggi di Indonesia adalah bambu ater (*Gigantochloa atter*). Bambu ater merupakan bambu yang banyak tumbuh secara alami salah satunya di Pulau Lombok. Perbedaan tempat tumbuh memberikan karakteristik yang berbeda terhadap kualitas bambu. Sampai saat ini penelitian mengenai karakteristik energi bambu ater masih sangat terbatas. Oleh karena itu, penelitian ini dilakukan untuk mengetahui pengaruh tempat tumbuh dan arah aksial yang berbeda pada karakteristik energi bambu ater.

Di dalam penelitian ini digunakan metode Rancangan Acak Lengkap dengan menggunakan dua faktor, yaitu tempat tumbuh dan arah aksial. Bahan baku yang digunakan yaitu *stick* yang berasal dari empat posisi aksial bambu ater dengan empat tempat tumbuh yang berbeda di Pulau Lombok. Sampel bambu tersebut kemudian dilakukan pengujian meliputi kadar air, berat jenis, kadar volatil, kadar abu, kadar karbon terikat, dan nilai kalor. Hasil dari pengujian tersebut kemudian dilakukan analisis menggunakan *two way annova*.

Hasil penelitian menunjukkan bahwa perbedaan tempat tumbuh bambu ater berpengaruh nyata pada kadar air, kadar volatil, kadar abu, kadar karbon terikat, dan nilai kalor. Perbedaan arah aksial bambu ater berpengaruh nyata pada kadar air, kadar volatil, kadar abu, dan nilai kalor. Sedangkan interaksi antara perbedaan tempat tumbuh dan arah aksial berpengaruh nyata pada kadar abu, kadar karbon terikat, dan nilai kalor. Karakteristik bambu ater yang diperoleh dari penelitian ini yaitu kadar air 9,632-10,941%; berat jenis 0,487-0,512; kadar volatil 78,845-82,372%; kadar abu 2,273-4,576%; kadar karbon terikat 14,804-18,302%; serta nilai kalor 4153-4505 cal/g.

Kata kunci: energi, biomassa, bambu ater, tempat tumbuh, arah aksial

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ANALYSIS OF ENERGY CHARACTERISTICS OF ATER BAMBOO (*Gigantochloa atter*) BASED ON DIFFERENT GROWTH SITE AND AXIAL DIRECTIONS

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ABSTRACT

Renewable energy from forest biomass can be utilized as a substitute for fossil fuels. One of the fast-growing biomasses in Indonesia is ater bamboo (*Gigantochloa atter*). Ater bamboo grows naturally in many areas, including Lombok Island. Different growth sites impart varying characteristics to the bamboo quality. To date, research on the energy characteristics of ater bamboo remains limited. Therefore, this study aims to determine the effect of different growth sites and axial directions on the energy characteristics of ater bamboo.

In this research, a Completely Randomized Design (CRD) method was used with two factors: growth site and axial direction. The raw material used was bamboo sticks from four axial positions of ater bamboo, sourced from four different growth sites on Lombok Island. The bamboo samples were tested for moisture content, specific gravity, volatile matter content, ash content, fixed carbon content, and calorific value. The test results were then analyzed using two-way annova.

The research results indicated that the different growth sites of ater bamboo significantly affect moisture content, volatile matter content, ash content, fixed carbon content, and calorific value. The different axial directions of ater bamboo significantly influence moisture content, volatile matter content, ash content, and calorific value. Meanwhile, the interaction between different growth sites and axial directions significantly impacts ash content, fixed carbon content, and calorific value. The characteristics of ater bamboo obtained from this study are moisture content of 9.632-10.941%; specific gravity of 0.487-0.512; volatile matter content of 78.845-82.372%; ash content of 2.273-4.576%; fixed carbon content of 14.804-18.302%; and calorific value of 4153-4505 cal/g.

Keywords: energy, biomass, ater bamboo, growth site, axial direction

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