

KARAKTERISTIK BATANG, CABANG, DAN RANTING TARUM (*Indigofera tinctoria* Linn.) PADA 3 KELAS DIAMETER SEBAGAI BAHAN UNTUK ENERGI

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INTISARI

Tarum (*Indigofera tinctoria* Linn.) merupakan salah satu spesies yang ditanam di KHDTK Wanagama, Gunungkidul. Tarum tergolong jenis tanaman cepat tumbuh dan memiliki tingkat produktivitas yang tinggi. Tanaman ini umumnya dimanfaatkan bagian daunnya sebagai pakan ternak dan zat pewarna alami. Sedangkan bagian batang, cabang, dan ranting masih belum dimanfaatkan secara optimal. Tujuan penelitian ini adalah untuk mengetahui karakteristik biomassa batang, cabang, dan ranting tarum sebagai bahan untuk energi.

Penelitian ini menggunakan dua faktor yaitu kelas diameter dan jenis biomassa. Kelas diameter dibagi menjadi diameter besar (6,5-7 cm), sedang (4,5-5 cm), dan kecil (2,5-3 cm) sedangkan jenis biomassa dibagi menjadi kulit batang, kayu batang, cabang (kulit dan kayu), dan ranting (kulit dan kayu). Penelitian ini menggunakan tanaman tarum berumur 20 bulan yang ditanam di petak 17 KHDTK Wanagama, Gunungkidul. Ketiga jenis biomassa batang, cabang, dan ranting tarum ditimbang berat segar biomassanya lalu diukur ketebalan kulit dan persentase kulitnya. Kemudian jenis biomassa dibagi menjadi kulit batang, kayu batang, cabang (kulit dan kayu), dan ranting (kulit dan kayu) lalu diambil 2 g untuk diuji kadar air segar, berat jenis, kadar zat volatil, kadar abu, dan kadar karbon terikat.

Hasil penelitian ini menunjukkan bahwa interaksi antar faktor memberikan pengaruh nyata terhadap parameter berat segar biomassa, ketebalan kulit, kadar air segar, dan kadar abu dengan nilai rerata berturut-turut 0,18-9,64 kg; 0,90 mm; 50,58%; 2,02%. Sedangkan hasil penelitian interaksi faktor kelas diameter dan jenis biomassa tarum tidak memberi pengaruh yang signifikan terhadap parameter persentase kulit, berat jenis, kadar zat mudah menguap, dan kadar karbon terikat. Berdasarkan penelitian ini kadar karbon terikat tertinggi didapatkan pada interaksi kelas diameter besar dan ranting dengan nilai 19,01%.

Kata kunci: tarum, energi, biomassa, kelas diameter

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CHARACTERISTICS OF STEM, BRANCH, AND TWIG OF TARUM (*Indigofera tinctoria* Linn.) IN 3 DIAMETER CLASSES AS MATERIAL FOR ENERGY

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ABSTRACT

Tarum (*Indigofera tinctoria* Linn.) is one of the species cultivated in the KHDTK Wanagama, Gunungkidul. Tarum is classified as a fast-growing plant with high productivity. Generally, its leaves are used as livestock feed and a source of natural dye. However, the potential of its stem, branches, and twigs has not been fully utilized. This research aims to investigate the characteristics of tarum's biomass in the stem, branches, and twigs as potential energy sources.

The study involves two factors: diameter class and biomass type. Diameter class is divided into large diameter (6,5-7 cm), medium (4,5-5 cm), and small (2,5-3 cm), while the biomass types are categorized into stem bark, stem wood, branch (bark and wood), and twig (bark and wood). The research involves 20-month-old tarum plants planted in plot 17 of KHDTK Wanagama, Gunungkidul. The fresh weight of the three types of biomass, stem, branch, and twig, is weighed, and then the bark thickness and bark percentage are measured. Next, the different biomass types are separated, including stem bark, stem wood, branch (bark and wood), and twig (bark and wood), and each sample is taken to test the moisture content, specific gravity, volatile substance content, ash content, and bound carbon content.

The results of this study showed that the interaction between the factors significantly influenced the parameters of fresh biomass weight, bark thickness, fresh water content, and ash content with average values of 0,18-9,64 kg; 0,90 mm; 50,58%; 2,02%, respectively. However, the interaction between the diameter class and tarum biomass type did not significantly affect the percentage of bark, density, volatile matter content, and fixed carbon content. Based on this research, the highest fixed carbon content was obtained from the interaction of large diameter class and twig with a value of 19,01%.

Keywords: tarum, energy, biomass, diameter class

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