

## POTENSI BIOMASSA DAN SIMPANAN KARBON PADA TEGAKAN AKASIA (*Acacia mangium*) DAN EUKALIPTUS (*Eucalyptus hybrid*) DI KHDTK WANAGAMA

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### INTISARI

Hutan memiliki peran penting dalam mitigasi perubahan iklim karena perannya sebagai penyerap dan penyimpan karbon. Tumbuhan menyerap karbon dari atmosfer melalui proses fotosintesis kemudian menyimpannya dalam bentuk biomassa. Penelitian dilakukan untuk mengetahui potensi biomassa dan simpanan karbon tegakan Akasia (*Acacia mangium*) dan Eukaliptus (*Eucalyptus hybrid*) di KHDTK Wanagama, Gunungkidul. Pendugaan biomassa pohon dilakukan dengan menggunakan petak ukur 20 m x 20 m, sedangkan pada pendugaan biomassa serasah dan tumbuhan bawah digunakan petak ukur 2 m x 2m. Pendugaan biomassa pohon dilakukan dengan menggunakan persamaan alometrik, sedangkan pendugaan biomassa serasah dan tumbuhan bawah dilakukan dengan menimbang berat sampel yang telah dikeringkan menggunakan oven dengan suhu 70°C hingga diperoleh berat kering konstan. Simpanan karbon tegakan, serasah, dan tumbuhan bawah dihitung menggunakan rumus konversi karbon Brown (19970), yaitu sebesar 50% dari nilai biomassa.

Hasil penelitian menunjukkan bahwa tegakan akasia memiliki potensi biomassa tegakan sebesar 138,01 ton/ha dan simpanan karbon sebesar 69,01 ton C/ha, sedangkan tegakan eukaliptus memiliki potensi biomassa sebesar 271,82 ton/ ha dan simpanan karbon sebesar 135,91 ton C/ha. Potensi biomassa dan simpanan karbon serasah pada tegakan akasia yaitu sebesar 11,32 ton/ha dan 5,66 ton C/ha, sedangkan potensi biomassa serasah dan simpanan karbon pada tegakan eukaliptus yaitu sebesar 10,07 ton/ha dan 5,04 ton C/ha. Potensi biomassa dan simpanan karbon tumbuhan bawah pada tegakan akasia yaitu sebesar 2 ton/ha dan 1 ton C/ha, sedangkan potensi biomassa dan simpanan karbon pada tegakan eukaliptus yaitu sebesar 0,63 ton/ha dan 0,32 ton C/ha.

Kata Kunci: Biomassa, Karbon, Alometrik, *Acacia mangium*, *Eucalyptus hybrid*

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## BIOMASS AND CARBON STORAGE POTENTIAL OF AKASIA (*Acacia mangium*) AND EUKALIPTUS (*Eucalyptus hybrid*) STANDS IN KHDTK WANAGAMA

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### ABSTRACT

Forests have a significant role in mitigating climate change due to their capacity as carbon sinks and stores. Plants absorb carbon from the atmosphere through the process of photosynthesis and subsequently store it in the form of biomass. The study was conducted to determine the potential of biomass and carbon storage of Akasia (*Acacia mangium*) and Eukaliptus (*Eucalyptus hybrid*) stands at KHDTK Wanagama, Gunungkidul. Estimation of tree biomass was carried out using a 20 m x 20 m plot, while for estimating litter and understorey biomass, a 2 m x 2 m plot was used. The estimation of tree biomass was carried out using allometric equations, while the estimation of litter and understorey biomass was carried out by measuring the weight of the sample that had been dried using an oven at a temperature of 70 to obtain a constant dry weight. The stand carbon storage, litter, and understorey were calculated using the carbon conversion formula of Brown (1997), which was 50% of the biomass value.

The results showed that the stand akasia has a biomass potential of 138,01 tons/ha and carbon stock of 69,01 tons C/ha, while eukaliptus has a biomass potential of 271,82 tons/ha and carbon stock of 135,91 tons C/ha. The potential for litter biomass and carbon stock in stand akasia was respectively 11,32 tons/ha and 5,66 tons C/ha, while the potential for litter biomass and carbon stock in eukaliptus was respectively 10,07 tons/ha and 5,04 tons C/ha. The potential for understorey biomass and carbon stock in stand akasia was respectively 2 tons/ha and 1 tons C/ha, while the potential for biomass and carbon stock in eukaliptus was respectively 0,63 tons/ha and 0,32 tons C/ha.

Keywords: Biomass, Carbon, Allometric, *Acacia mangium*, *Eucalyptus hybrid*

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