

POTENSI PRODUKSI BIOMASSA DAN VALUASI EKONOMI KARBON JENIS *Anthocephalus cadamba* DI KHDTK WANAGAMA I, KABUPATEN GUNUNGKIDUL, PROVINSI DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

Pemanasan global merupakan salah satu isu lingkungan yang berdampak besar bagi kehidupan manusia. Fenomena ini disebabkan oleh tingginya konsentrasi gas rumah kaca di atmosfer. Pepohonan dalam ekosistem hutan dapat mengurangi konsentrasi gas rumah kaca di atmosfer, khususnya gas karbon dioksida (CO₂), dengan cara menyerapnya kemudian mentransformasikannya dalam bentuk simpanan karbon. Penelitian ini bertujuan untuk mengetahui potensi biomassa, simpanan karbon, serapan gas CO₂, dan nilai ekonomi serapan CO₂ jenis *Anthocephalus cadamba* di KHDTK Wanagama I, Kabupaten Gunungkidul, Provinsi Daerah Istimewa Yogyakarta.

Penelitian ini dilakukan dengan metode *non-destructive*, menggunakan persamaan allometrik penduga biomassa $Y = 0,014(D)^{2,958}$. Nilai simpanan karbon diasumsikan sebesar 47% dari biomassa total dan serapan CO₂ dihitung dengan mengonversi nilai massa atom C ke molekul CO₂. Valuasi ekonomi serapan karbon dioksida dilakukan dengan pendekatan *benefit transfer*. Hasil penelitian menunjukkan potensi biomassa, simpanan karbon, dan serapan karbon dioksida jenis *Anthocephalus cadamba* di KHDTK Wanagama I secara berurutan yaitu: 20,91 ton/ha; 9,83 ton/ha; dan 36,06 ton/ha. Nilai total simpanan karbon jenis *Anthocephalus cadamba* termasuk dalam kategori rendah. Hasil potensi serapan CO₂ jenis *Anthocephalus cadamba* yang dapat diperjualbelikan dalam mekanisme perdagangan karbon memiliki nilai ekonomi sebesar US\$208,21/ha atau Rp.2.983.584,18/ha.

Kata kunci: *Anthocephalus cadamba*, biomassa, simpanan karbon, serapan CO₂, valuasi ekonomi

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POTENTIAL OF BIOMASS PRODUCTION AND CARBON ECONOMIC VALUATION OF *Anthocephalus cadamba* IN KHDTK WANAGAMA I, GUNUNGKIDUL REGENCY, SPECIAL REGION OF YOGYAKARTA PROVINCE

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ABSTRACT

Global warming is one of the environmental issues that has a major impact on human life. The phenomenon is caused by the high concentration of greenhouse gases in the atmosphere. Trees in forest ecosystem can reduce the concentration of greenhouse gases in atmosphere, particularly carbon dioxide (CO₂) gases, by absorbed it and then transformed it into carbon stocks. The purposes of this research was to determine the potential of biomass, carbon stock, CO₂ gases uptake, and the economic value of CO₂ uptake of *Anthocephalus cadamba* in KHDTK Wanagama I, Gunungkidul Regency, Special Region of Yogyakarta Province.

This research was conducted using a non-destructive method, which used the allometric equation to estimate biomass $Y = 0,014(D)^{2,958}$. The carbon stock value was assumed as 47% of the total biomass and CO₂ uptake is calculated by converting the atomic mass of C into CO₂ molecules. Carbon dioxide uptake economic valuation was conducted using the benefit transfer approach. The results showed that potential biomass, carbon stock, and CO₂ uptake of *Anthocephalus cadamba* in KHDTK Wanagama I, respectively: 20,91 ton/ha; 9,83 ton/ha; and 36,06 ton/ha. The total value of carbon stock of *Anthocephalus cadamba* was included in the low category. The results of potential CO₂ uptake of *Anthocephalus cadamba* which can be traded in carbon trading mechanism has an economic value of US\$208,21/ha or Rp.2.983.584,18/ha.

Keywords: *Anthocephalus cadamba*, biomass, carbon stock, CO₂ uptake, economic valuation

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