POTENSI BIOMASSA DAN TAKSIRAN NILAI EKONOMI PENYERAPAN KARBON TANAMAN CENDANA (*Santalum album* L.) DI HUTAN RAKYAT DESA BABUIN, KABUPATEN TIMOR TENGAH SELATAN, PROVINSI NUSA TENGGARA TIMUR

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INTISARI

Penelitian ini dilakukan untuk mengetahui potensi biomassa dan kandungan karbon, dan besarnya CO_2 yang dapat diserap tanaman cendana (*Santalum album* L.) serta nilai ekonomi penyerapan karbon tanaman cendana di hutan rakyat Desa Babuin, Kabupaten Timor Tengah Selatan, Provinsi NTT. Penelitian ini penting karena penjualan jasa lingkungan melalui mekanisme pasar karbon memberikan insentif dan menyediakan sumber pendapatan baru bagi masyarakat. Selain itu, cendana berkontribusi penuh baik secara ekologi dan ekonomi bagi masyarakat lokal maupun pemerintah daerah.

Tujuan dari penelitian ini yakni: (1) mengetahui kandungan biomassa dan karbon pada berbagai organ tanaman cendana; (2) menyusun persamaan allometrik untuk menentukan biomassa dan karbon tanaman cendana; (3) mengetahui potensi biomassa dan karbon serta besarnya CO_2 yang dapat diserap oleh cendana; dan (4) mengetahui besar nilai ekonomi serapan karbon tanaman cendana di hutan rakyat Desa Babuin.

Pengambilan data dilakukan dengan beberapa tahapan sebagai berikut: (1) untuk mengetahui kandungan biomassa dan karbon tanaman cendana digunakan metode *Walkley* dan *Black;* (2) untuk menyusun persamaan allometrik digunakan *software* Ms. Excell dan SPSS 16.0; (3) untuk menaksir potensi biomassa dan karbon serta besarnya CO_2 yang dapat diserap oleh cendana dilakukan inventarisasi hutan rakyat menggunakan metode *Destructive sampling* secara *in situ*; (4) untuk menaksir nilai ekonomi penyerapan karbon tanaman cendana digunakan rumus $NEPK = Total\ Serapan\ Karbon\ x\ harga\ pasar\ karbon.$

Hasil penelitian menunjukkan besarnya potensi biomassa cendana adalah 1.367,5 ton/ha, potensi karbon cendana adalah 0,275 ton/ha serta serapan CO_2 oleh cendana adalah 1,007 ton/ha. Nilai ekonomi penyerapan karbon cendana di hutan rakyat Desa Babuin berkisar antara $1.502,05 US atau setara dengan Rp21.018.451,43 hingga mencapai $4.291,56 US atau setara dengan Rp60.052.718,38.

Kata kunci: biomassa, karbon, *Walkley* dan *Black*, allometrik, cendana (*Santalum album* L.), hutan rakyat, nilai ekonomi serapan karbon, Desa Babuin.

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BIOMASS POTENTIAL AND ECONOMIC VALUE ESTIMATION OF SANDALWOOD (*Santalum album* L.) PLANTS CARBON ABSORPTION IN PRIVATE FOREST OF BABUIN VILLAGE, TIMOR TENGAH SELATAN REGION, NUSA TENGGARA TIMUR PROVINCE

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ABSTRACT

This study was conducted to determine the potential of biomass and carbon content, and the amount of CO_2 that can be absorbed by sandalwood plants (*Santalum album* L.) as well as the economic value of carbon sequestration of sandalwood plants in the private forest of Babuin Village, Timor Tengah Selatan District, NTT Province. This research is important because according to the author the sale of environmental services through the carbon market mechanism provides incentives and provides new sources of income for the community. In addition, sandalwood fully contributes both ecologically and economically to local communities and local governments.

The purpose of this study are: (1) to determine the content of biomass and carbon in various sandalwood plant organs; (2) to compile allometric equations to determine the biomass and carbon of sandalwood plants; (3) to ascertain the potential of biomass and carbon and the amount of CO_2 that can be absorbed by sandalwood; and (4) to measure the economic value of carbon uptake of sandalwood in the private forests of Babuin Village.

Data retrieval was carried out with several stages as follows: (1) to determine the biomass and carbon content of sandalwood plants Walkley and Black methods were used; (2) to compile allometric equations used by Ms. Excell and SPSS 16.0 software; (3) to estimate the potential of biomass and carbon and the amount of CO_2 that can be absorbed by sandalwood carried out a private forest inventory using the method of destructive sampling in situ; (4) to estimate the economic value of carbon sequestration of sandalwood plants is used the formula: *Economic Value of Carbon Sequestration (EVCS) = Total Carbon Uptake x carbon market prices*.

The results showed that the potential of sandalwood biomass was 1,367.5 ton/ha, the potential of sandalwood carbon was 0.275 ton/ha and the CO_2 uptake by sandalwood was 1.007 ton/ha. The economic value of the absorption of sandalwood in the private forests of Babuin Village ranges between $ 1,502.05 US, equivalent to Rp21,018,451.43 to reach $ 4,291.56 US, equivalent to Rp60,052,718.38.

Key word: biomass, carbon, Walkley and Black, allometric, Sandalwood (*Santalum album* L.), private forest, economic value of carbon sequestration, Babuin village.

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