

PERAN REHABILITASI MANGROVE DALAM MENYIMPAN KARBON
PADA SUBSTRAT LUMPUR DI PANTAI UTARA DESA SAWOJAJAR
KECAMATAN WANASARI KABUPATEN BREBES JAWA TENGAH

INTISARI

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Kawasan rehabilitasi mangrove memiliki peranan penting berkaitan dengan pencegahan pemanasan global yaitu dengan mengendalikan konsentrasi karbon di atmosfer, dimana karbon organik hasil fotosintesis dapat disimpan dalam biomassa tegakan hutan. Pada sebagian besar ekosistem, bahan ini membusuk dan melepaskan karbon kembali ke atmosfer sebagai (CO₂). Akan tetapi pada hutan mangrove, karbon yang telah diserap kemudian akan dilepaskan dalam bentuk biomassa berupa seresah yang jatuh kedalam lumpur dan akhirnya tersimpan di dalam lumpur. Kerusakan mangrove di pantai utara Desa Sawojajar akibat penggunaan lahan didominasi oleh tambak yang mengabaikan mangrove disekitarnya mungkin dapat mengakibatkan potensi simpanan karbon semakin menurun.

Tujuan penelitian ini untuk mengetahui ketebalan lumpur, kerapatan, lebar perakaran, tinggi vegetasi penyusun, kandungan karbon pada substrat lumpur mangrove dan hubungan ketebalan lumpur dengan kandungan karbon pada substrat lumpur pada tahun tanam 2002, 2004 dan 2009 di kawasan rehabilitasi mangrove. Analisis yang digunakan adalah analisis varians dengan uji lanjut LSD dan analisis regresi linier sederhana dan menggunakan variasi 3 tahun tanam. Masing-masing tahun tanam dibagi menjadi 3 zona (depan, tengah, dan belakang) dan dibuat 15 petak ukur. Data yang dianalisis yaitu kerapatan vegetasi, lebar perakaran, tinggi vegetasi, ketebalan lumpur, faktor fisik kimia habitat, dan kandungan karbon lumpur.

Kawasan rehabilitasi mangrove Desa Sawojajar didominasi oleh jenis *Rhizophora mucronata*. Hasil penelitian menunjukkan bahwa kandungan karbon pada substrat lumpur untuk tahun tanam 2002 yaitu sebesar 105,678 ton per ha, tahun tanam 2004 sebesar 73,527 ton per ha, tahun tanam 2009 sebesar 61,526 ton per ha. Total simpanan karbon di dalam tanah pada tiga tahun tanam mangrove seluas 1,219 ha diketahui sebesar 93,551 ton dan dengan rata-rata 80,244 ton per ha. Persamaan regresi yang dihasilkan adalah Y (kandungan karbon) = $1.065 + 1.197X$ (ketebalan lumpur). Semakin lama (tua) umur mangrove, ketebalan lumpurnya semakin tebal dan kandungan karbon pada substrat lumpur semakin tinggi.

Kata kunci : mangrove, simpanan carbon, substrat lumpur

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THE ROLE OF MANGROVE REHABILITATION IN STORING THE
CARBON ON MUD SUBSTRATE IN NORTHERN COAST OF SAWOJAJAR
VILLAGE OF WANASARI SUB- DISTRICT OF BREBES DISTRICT OF
CENTRAL JAVA

ABSTRACT

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The mangrove rehabilitation area has important role relating to the global warming prevention through controlling the carbon concentration in atmosphere, where the organic carbon as photosynthesis result can be stored in the forest stand biomass. In majority of ecosystem, this biomass decomposes and releases carbon back to atmosphere as CO₂. However, in mangrove forest, the absorbed carbon further will be released in term biomass as litter which falling down into mud and finally stored in the mud. The mangrove destruction in Northern Coast of Sawojajar Village caused by the land cultivation dominated by shrimp and fish cultivation which ignoring the mangrove around and might cause the carbon storing potency going to decrease.

The aims of this research were to find out the mud thickness, density, rooting wide, constituent vegetation height, carbon content in mangrove mud substrate in plant year of 2002, 2004 and 2009 in mangrove rehabilitation area. The analysis applied is variant analysis with LSD advanced test and simple linear regression analysis and uses three variations of plant year. The plant year respectively divided into 3 zones (front, middle, and back) and made 15 measurement compartments. Analyzed data are vegetation density, rooting wide, vegetation height, mud thickness, chemical physically factor of habitat and mud carbon content.

The mangrove rehabilitation area of Sawojajar Village is dominated by *Rhizophora mucronata* variety. The research finding showed that carbon content in mud substrate to plant year of 2002 was 105,678 ton per ha, plant year of 2004 was 73,527 ton per ha, plant year of 2009 was 61,526 ton per ha. Total deposits of carbon in the soil at three years of planting mangrove area of 1.219 ha and was known for 93.551 tons with an average 80.244 tons per ha. The regression equation resulted was Y (carbon content) = 1,065 + 1,197X (mud content), the older of mangrove rehabilitation age, the thickness of mud was thicker and the carbon content in mud substrate was higher.

Key words: mangrove, carbon savings, mud substrate

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