INVENTORE BIOMASSA DAN KARBON AKAR *Rhizophora mucronata* DI HUTAN MANGROVE

(Kasus di Desa Pasar Banggi, Kabupaten Rembang, Jawa Tengah)

Fepi Dora Br Girsang[1]
Ris Hadi Purwanto[2]
Budi Murdawa[3]

INTISARI

Hutan memiliki peranan yang penting dalam penyerapan dan penyimpanan gas CO_2 dari atmosfer. Untuk mengetahui besarnya kemampuan hutan dalam penyimpanan dan penyerapan gas CO_2 perlu dilakukan pengukuran kandungan biomassa dan karbon pada berbagai jenis vegetasi penyusun hutan, salah satunya yaitu *Rhizophora mucronata.* Pengukuran kandungan biomassa dan karbon di bagian bawah tanah khususnya akar masih jarang dilakukan, sehingga perlu dilakukan pengukuran pada organ akar karena akar juga memiliki kandungan biomassa dan karbon yang cukup besar.

Pengukuran kandungan biomassa dan karbon akar dilakukan di kawasan rehabilitasi hutan mangrove jenis *Rhizophora mucronata* di Desa Pasar Banggi Kabupaten Rembang, Jawa Tengah. Metode penelitian terdiri dari 3 tahap yaitu : penghitungan kandungan biomassa dan karbon akar, penyusunan persamaan allometrik, dan estimasi kandungan biomassa dan karbon akar di kawasan rehabilitasi hutan mangrove.

Hasil rata-rata kandungan biomassa per pohon yaitu akar atas 7.32 kg, dan akar bawah 3.21 kg, sedangkan untuk kandungan karbon per pohon yaitu akar atas 4.29 kg, dan akar bawah 2.17 kg. Jumlah pohon dalam satu hektar yaitu 5962 pohon. Persamaan allometrik yang diperoleh untuk penaksiran biomassa yaitu untuk akar atas $B=1.325D - 4.166$ ($R^2 = 0.757$), akar bawah $B = 0.029 D^2H^{0.700}$ ($R^2 = 0.905$), dan akar total $B = 2.035D - 7.115$ ($R^2 = 0.837$), sedangkan untuk penaksiran karbon diperoleh untuk akar bawah $C=0.018D^2H^{0.713}$ ($R^2 = 0.923$), akar atas $C = 0.775D - 2.268$ ($R^2 = 0.775$), dan akar total $C = 1.242D - 4.312$ ($R^2 = 0.852$). Dari hasil inventarisasi dengan luas 2.8 Ha diperoleh biomassa akar 74.49 ton/ha, dengan potensi total 208.58 ton, dan karbon akar 45.65 ton/ha dengan potensi total 127.81 ton. Besarnya gas CO_2 yang mampu diserap oleh akar adalah 468.64 ton

Kata Kunci : biomassa, karbon, akar *Rhizophora mucronata*, allometrik, inventore

[1]Mahasiswa Fakultas Kehutanan UGM Jurusan Manajemen Hutan Angkatan 2006
[2]Dosen Jurusan Manajemen Hutan, Fakultas Kehutanan UGM
[3]Dosen Jurusan Manajemen Hutan, Fakultas Kehutanan UGM

INVENTORE OF BIOMASS AND CARBON *Rhizophora mucronata* ROOT IN MANGROVE FOREST

(Case in Pasar Banggi Village, Rembang Regency, Central Java)

Fepi Dora Br Girsang[1]
Ris Hadi Purwanto[2]
Budi Murdawa[3]

ABSTRACT

Forest have an important role in the absorbtion and storage of CO_2 gas from atmosphere. To determine the amount of storage capacity in forest and CO_2 gas absorption measurements were taken of biomass and carbon content in different types of forest vegetation composer, one of wich is *Rhizophora mucronata.* Measurement of biomass and carbon content in the below ground, especially the roots are still rarely performed, so that the measurements were taken at the roots because the root also has a carbon content of biomass and too large.

Measurements of biomass and carbon content of roots was conducted in the area of mangrove forest rehabilitation *Rhizophora mucronata* in the Pasar Banggi Village, Rembang Regency, Central Java. The method applied in this research consists of three steps : first, the determining biomass and root carbon content of the root, second, developing the allometrik equation and third, estimates of biomass and carbon content of roots in the area of mangrove forest rehabilitation.

The average result of biomass content in one tree is as follows: above root 7.32 kg, and below root 3.21 kg, while for the carbon content in one tree is as follows above root 4.29 kg below root 2.17 kg. The total of trees is 5962 trees/ha. Allometric equations obtained for the estimation of biomass as to the above $B = 1.325D - 4166$ ($R^2 = 0.757$), the below root as $B = 0.029\ D^2H^{0.700}$ ($R^2 = 0.905$), and the roots total $B = 2.035D - 7115$ ($R^2 = 0.837$) , whil for the estimation of carbon as to the below roots $C=0.018D^2H^{0.713}$ ($R^2 = 0.923$), the above roots as $C = 0.775D - 2268$ ($R^2 = 0.775$) and the root the total $C = 1.242D - 4312$ ($R^2 = 0.852$). From the results of inventory acquired in an area 2.8 Ha, the average amount of root biomass is 74.49 tons/ha, with a total biomass potential is 208.58 tons, and root carbon is 45.65 tons/ha with a total carbon potential is 127.81 tons. The amount of absorbable CO_2 gas by the roots is 468.64 tons.

Keywords : biomass, carbon, *Rhizophora mucronata roots*, allometric, inventore

[1]Student of Forestry Faculty, UGM, Forest Management Department, Year 2006
[2]Lecturer of Forest Management, Faculty of Forestry, UGM
[3]Lecturer of Forest Management, Faculty of Forestry, UGM