Potensi Biomassa dan Karbon *Above Ground* Famili *Dipterocarpaceae* pada Sistem Tanaman Jalur di PT.Sari Bumi Kusuma, Kalimantan Tengah

Ucillia Ayuni[1]

Ris Hadi Purwanto[2]

INTISARI

Hutan memegang peranan penting dalam siklus karbon dunia, khususnya hutan tropis dataran rendah, dengan keanekaragaman hayatinya mampu menyimpan karbon dalam jumlah yang besar dalam berbagai vegetasi dan tanah. PT SBK sebagai perusahaan yang mendapat Izin Usaha Pemanfaatan Hasil Hutan Kayu (IUPHHK) pada kawasan hutan hujan tropis di Kalimantan Tengah. Pengelolaan hutan tropis khususnya di PT. Sari Bumi Kusuma didasarkan pada sistem silvikultur guna memanfaatkan hasil secara optimal, penanaman untuk kelestarian pengelolaan dan pemeliharaan agar produk yang dihasilkan berkualitas dan lestari.

Penelitian ini bertujuan untuk mengetahui persentase biomassa dan karbon yang tersimpan pada tegakan hutan di sistem tanaman jalur pada beberapa jenis dari famili *Dipterocarpaceae* dan kemampuanya dalam menyerap gas CO_2 dari atmosfer. Kemudian menyusun persamaan allometrik kandungan biomassa dan karbon bagian diatas permukaan tanah. Penelitian dilakukan pada tegakan hutan dari famili *Dipterocarpaceae* di areal hutan tanaman industri (HTI) PT. Sari Bumi Kusuma (SBK) Kalimantan Tengah. Potensi stok karbon diketahui melalui metode pengukuran langsung dengan teknik *Destrucktive Sampling* dan metode karbonasi, dan membangun persamaan allometrik dengan metode regresi.

Hasil penelitian ini adalah presentase kandungan biomassa rata-rata per organ pohon adalah biomassa batang =58,83 %, biomassa cabang = 25 %, biomassa daun = 16 %. Sedangkan presentase kandungan karbon rata-rata per organ pohon adalah karbon batang = 59,82%, karbon cabang = 25 %, karbon daun = 16 %. Persamaan allometrik untuk hubungan antara diamater (D) dengan kandungan biomassa total adalah BT = 0,103 $(D)^{2,339}$ (R^2) = 0,960 dan hubungan antara diameter (D) dengan kandungan karbon total CT = 0,049 $(D)^{2,347}$ (R^2) = 0,961 serta estimasi Serapan gas CO_2 = 0,180 $(D)^{2,345}$. Berdasarkan hasil pendugaan diperoleh serapan gas CO_2 per ha pada sistem tanaman jalur di PT.Sari Bumi Kusuma sebesar 175,41 ± 40,32 ton/ha.

Kata Kunci : *Dipterocarpaceae*, biomassa, karbon, allometrik, PT. Sari Bumi Kusuma

[1]Mahasiswa Fakultas Kehutanan Universitas Gadjah Mada Jurusan Manajemen Hutan
[2]Dosen Fakultas Kehutanan Universitas Gadjah Mada

Carbon and Biomass Potency on *Dipterocarpaceae* Family's *Above Ground* Part of Lines Plant System in PT. Sari Bumi Kusuma, Central Borneo

Ucillia Ayuni Musakkir[1]

Ris Hadi Purwanto[2]

ABSTRACT

Forest have the important part in world carbon cycles, especially in lowland tropical forest, under their biodiversity which can hold a large amount of carbon in various ground and vegetation. PT. SBK as the company which got Forest Plantation Wood Production Permit in Central Borneo tropical rain forest area. The management of tropical forest, especially in PT. Sari Bumi Kusuma based on silviculture system, in order to utilized the results optimally, planting for management sustainability and maintenance in order to get sustainable and qualified resulting product.

This research's purpose is to find out the percentage of carbon and biomass which stored on Lines Plant System of forest stand in some types of Dipterocarpaceae family and the ability to absorb carbon dioxide (CO_2) gas from atmosfer. Later, arranged the allometric equation of biomass and carbon content on the land's surface section. The research was conducted in *Dipterocarpaceae* family's stand on Industrial Plantation Forest of PT. Sari Bumi Kusuma, Central Borneo. Carbon stock potency conducted by direct measurement method with *Destructive Sampling* technique and carbonated method, also arranged the allometric equation by regression method.

Result from this research are the percentage of biomass content's average of each tree organs, they are stem's biomass = 58,83%, branch's biomass = 25%, leave's biomass = 16%. Whereas the percentage of carbon content's average for each tree organs are stem's carbon = 59,82%, branch's carbon = 25%, leave's carbon = 16%. Allometric equation for the relations between diameter (D) and the total of biomass content is $BT = 0{,}103\ (D)^{2{,}339}$ $(R)^2 = 0{,}960$ and the realtions between diameter (D) and the total of carbon content is $CT = 0{,}049\ (D)^{2{,}347}$ $(R)^2 = 0{,}961$. Also estimates of carbon dioxide (CO_2) gas absorption is $CO_2 = 0{,}180\ (D)^{2{,}345}$. Based on estimation result, obtained of carbon dioxide (CO_2) gas absorption for each hectare on Lines Planting System of PT. Sari Bumi Kusuma in amount of 175,41 ± 40,32 ton/ha.

Key words : *Dipterocarpaceae*, biomass, carbon, allometric, PT. Sari Bumi, Kusuma

[1] Student of Forest Management Department, Faculty of Forestry, Universitas Gadjah Mada
[2] Lecturer of Forest Management Department, Faculty of Forestry, Universitas Gadjah Mada

Carbon and Biomass Potency on Dipterocarpaceae Family's Above Ground Part of Lines Plant System in PT. Sari Bumi Kusuma, Central Borneo

Ucillia Ayuni Musakkir[i]
Ris Hadi Purwanto[ii]

ABSTRACT

Forest have the important part in world carbon cycles, especially in lowland tropical forest, under their biodiversity which can hold a large amount of carbon in various ground and vegetation. PT. SBK as the company which got Forest Plantation Wood Production Permit in Central Borneo tropical rain forest area. The management of tropical forest, especially in PT. Sari Bumi Kusuma based on silviculture system, in order to utilized the results optimally, planting for management sustainability and maintenance in order to get sustainable and qualified resulting product.

This research's purpose is to find out the percentage of carbon and biomass which stored on Lines Plant System of forest stand in some types of Dipterocarpaceae family and the ability to absorb carbon dioxide (CO2) gas from atmosfer. Later, arranged the allometric equation of biomass and carbon content on the land's surface section. The research was conducted in Dipterocarpaceae family's stand on Industrial Plantation Forest of PT. Sari Bumi Kusuma, Central Borneo. Carbon stock potency conducted by direct measurement method with Destructive Sampling technique and carbonated method, also arranged the allometric equation by regression method.

Result from this research are the percentage of biomass content's average of each tree organs, they are stem's biomass = 58,83%, branch's biomass = 25%, leave's biomass = 16%. Whereas the percentage of carbon content's average for each tree organs are stem's carbon = 59,82%, branch's carbon = 25%, leave's carbon = 16%. Allometric equation for the relations between diameter (D) and the total of biomass content is BT = 0,103 (D)2,339 (R)2 = 0,960 and the realtions between diameter (D) and the total of carbon content is CT = 0,049 (D)2,347 (R)2 = 0,961. Also estimates of carbon dioxide (CO2) gas absorption is CO2 = 0,180 (D)2,345. Based on estimation result, obtained of carbon dioxide (CO2) gas absorption for each hectare on Lines Planting System of PT. Sari Bumi Kusuma in amount of 175,41 ± 40,32 ton/ha.

Key words : *Dipterocarpaceae*, biomass, carbon, allometric, PT. Sari Bumi, Kusuma

[i]Student of Forest Management Department, Faculty of Forestry, Universitas Gadjah Mada
[ii]Lecturer of Forest Management Department, Faculty of Forestry, Universitas Gadjah Mada