Indian Journal of Ecology (2021) 48(1): 238-242

Manuscript Number: 3200
NAAS Rating: 4.96

Assessment of above Ground Biomass and Carbon Stock of Tropical Rain-forest Tree Species from Java, Yogyakarta, Indonesia

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Abstract: The study was conducted in the mixed plantation of tropical rain-forest species of Java Island, Special Region of Yogyakarta, Indonesia. Forests act as a source or sinks for atmospheric CO_2 to store from the atmosphere in different carbon pools by trees in a forest stand. The objectives of the study were to evaluate tree biomass, carbon stock, and absorb carbon dioxide and to expose the impacts of the basal area on biomass, carbon stocks, and absorb CO_2. The sample was selected by a simple random sampling method in the study site. Tree diameter at breast height point, height, and the crown cover were measured as primary source data. The tree basal area showed a strong positive correlation on tree biomass, carbon stocks and absorb CO_2, and value of R^2 is closed to 1, although when the basal area was increases with an increase in biomass, carbon stocks and absorb CO_2 of both sample trees. Average basal area was 1.850 m^2, total biomass is 4.276-ton, carbon stocks was 2.13 tons and CO_2 absorptions were 7.84±61.21 tons in *Spondias dulcis* and more as compared to *Monoon lingifolium* which shows suitability and its quality of the site. Proper scientific management and proper utilization of the forest stand can be significant measures to enhance the potential of the forest to be stored and sink more carbon and can be included for CDM and REED++ under Kyoto protocol.

Keywords**:** Basal area, Biomass, Carbon stocks, Absorbed carbon dioxide