

Estimating aboveground biomass and carbon stocks of mangrove forests in Kuala Sepetang, Perak

ABSTRACT

Tree biomass estimates and analyses are essential for carbon accounting and other feasibility studies including bioenergy. Forest including mangrove trees play an important role in ecosystems which could be addressing climate change and mitigation through biomass and carbon storage. A reasonable method for estimating tree biomass and carbon stocks are increasingly important due to concerns on global climate change and carbon sequestration. This study aims to estimate the aboveground biomass (AGB) of a mangrove trees in Kuala Sepetang using allometric model. A total of 16 compartments of mangrove were used to sample a 150 plots. Biomass and carbon stock by each plot and compartment were estimated. It was found that the average AGB for all sample plots were 168.93 t ha⁻¹. The maximum value was 462.40 t ha⁻¹ while the minimum value was 24.35 t ha⁻¹ and a total AGB of the study plots was about 2,533.98 tonnes. The total value for carbon stock in 150 plots was 12,669.90 tC ha⁻¹ while the average was 84.47 tC ha⁻¹. The estimation of ABG was 1.8% more when compared to previous study by using destructive method. Thus, the allometric method is practical to estimate AGB. The advantage of the allometric method is the operation is simple at low cost. This method also could be done in a short of time and most accurate in forest plantations where trees are relatively uniform.

Keyword: Biomass-carbon content; Mangroves; Aboveground biomass; Allometric equation