Estimation of carbon pool at mangrove forest of Kudat, Sabah, Malaysia

ABSTRAK

Hatta SM, Salleh E, Suhaili NS, Besar NA. 2022. Estimation of carbon pool at mangrove forest of Kudat, Sabah, Malaysia. Biodiversitas 23: 4601-4608. Mangroves play a significant role in reducing tropical carbon emissions and preventing climate change. This study was carried out in Kudat's Tun Mustapha Park mangrove forest. This research aims to quantify the aboveground, belowground, and soil carbon pools. Nine 125-meter-long transect lines were set up, and every 25 meters, a 7-meter-diameter circle was placed. A forest inventory was conducted to determine the diameter at the breast height of standing trees. For soil analysis and bulk density, soil samples were collected at four different depths (0-15 cm, 15-30 cm, 30-50 cm, and 50-100 cm). An ICP-OES analyzer was used to determine the value of soil nutrients, and a CHNS analyzer was used to determine the soil carbon concentration. The aboveground and belowground biomass was calculated using the allometric equation, and the carbon stock was estimated at 50% of the total biomass. The outcome showed a 455.87 MgCha-1 total carbon pool. The soil carbon has the highest value with 273.76 MgCha-1 , followed by aboveground carbon (living trees) with 136.58 MgCha-1 and belowground carbon (roots) with 45.53 MgCha-1. This study found that soil carbon stock made up almost 60% of the total carbon stock in the mangrove forest.