

Forest recovering and soil respiration rate

ABSTRACT

This study was conducted to investigate the rate of soil respiration from a recovering forest of the tropics and its relationship with changes in environmental factors after years of deforestation. Soil respiration measurement was conducted using the continuous open flow chamber technique connected to a multi gas-handling unit and infrared gas analyser, while the forest biomass and soil properties were quantified using the Kjeldahl method and Walkley-black wet oxidation technique. The average means soil respiration rate were 341.23, 383.07, 340.30, 308.12, 286.07, 256.05 mg m⁻² h⁻¹ between June and December. Soil respiration in the month of July was significantly ($p < 0.01$) higher compared to other months, with lower emission rate in December. Soil respiration exhibited a variation pattern that was similar to soil temperature pattern, the pattern varied monthly.

Keyword: Forest biomass; Recovering forest; Soil carbon stock; Soil respiration; Soil temperature