

Chonthida Chernkhuntod 2007: Aboveground Carbon Storage in *Eucalyptus urophylla* Plantation at Sakaerat Silvicultural Research Station, Nakhon Rachasima Province. Master of Science (Forestry), Major Field: Silviculture, Department of Silviculture. Thesis Advisor: Mr. Sakhan Teejuntuk, Ph.D. 78 pages.

Carbon content in *Eucalyptus urophylla* plantation at Sakaerat Silvicultural Research Station, Nakhon Rachasima Province was carried out in 40 m x 40 m sample plot of 3 m x 3 m in spacing of 1 - 5 years old *Eucalyptus urophylla* plantation. Tree dimensions were measured in the sample plot in order to estimate stem, branch and leaf biomass with stratified clip technique. Besides, litterfall and litter decomposition at 5 years old of *Eucalyptus urophylla* plantation were also studied. Total carbon of each part was analyzed by CN corder model MT – 700.

The results showed that total aboveground biomass of 1, 2, 3, 4 and 5 years old *Eucalyptus urophylla* were 11.75, 26.00, 51.81, 77.63 and 90.94 tonnes/hectare respectively. Mean carbon concentration of stem, branch and leaf of this species were 47.54, 48.93 and 51.32 percents respectively. Therefore, the carbon content of aboveground biomass of 1, 2, 3, 4 and 5 years old of the species were 5.70, 12.56, 24.78, 37.18 and 43.55 tonnes/hectare respectively. In this study, it concluded at 5 years of age the increment of *Eucalyptus urophylla* aboveground biomass was 14.02 tonnes/hectare /year. Total litterfall in this plantation was 7.67 tonnes/hectare/year. 71.31 percents of them could decomposed in a year. Besides, mean carbon concentration of each part had a similar value with the value of it at 1-5 years old. Finally, the carbon increment in aboveground biomass and total litterfall of the plantation were 6.66 and 3.31 tonnes/hectare/year. Furthermore, amount of carbon decomposed from total litterfall in *Eucalyptus urophylla* plantation was 2.36 tonnes/hectare/year.

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Thesis Advisor's signature