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	作成者: Sharma, Sahadev, Analuddin, Kangkuso, Hoque, A.T.M. Rafiqul, Suwa, Rempei, Hagihara, Akio
	メールアドレス:
	所属:
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PE-7 Litterfall studies on mangrove *Kandelia obovata* stands at Manko Wetland, Okinawa Island, over three years

S. Sharma[1*], K. Analuddin[1], A.T.M. Rafiqul Hoque[1], R. Suwa[2], A. Hagihara[2]

[1]*Graduate School of Engineering and Science, University of the Ryukyus*
[2]*Faculty of Science, University of the Ryukyus*

Components of litterfall were measured for over three years (April 2005 to January 2009) at Manko Wetland in a belt-transect (5 m × 125 m) of *Kandelia obovata* (S., L.) Yong stands. Mean annual total litterfalls of the 1st, the 2nd and the 3rd year were respectively estimated as 924.5 ± 0.3, 1088.1 ± 0.5 and 1248.2 ± 0.9 (SE) g $m^{-2} yr^{-1}$. Kendall's consistency coefficient W of leaf, stipule and reproductive litterfalls did not show significant differences among years except for branch litterfall. It suggests that the seasonal trends of litterfalls were not different among years, except for the branch litterfall. On the other hand, according to ANOVA there were no significant differences in total annual litterfall between the 1st and 2nd year, and between 1st and 3rd year. There was a significant difference between the 2nd and 3rd year. The stepwise multiple regression method showed that the leaf litterfall was significantly related with monthly mean air temperature and maximum wind speed. The stipule and flower litterfalls were significantly related with monthly mean air temperature. The branch litterfall was strongly related with monthly maximum wind speed, but not with monthly mean temperature. The propagule litterfall did not depend on the environmental factors. A power function was used to establish the relationship between mean litterfall components per tree and mean basal area per tree. ANCOVA's results showed that there was a significant difference in 1st, 2nd and 3rd year between mean branch or flower litterfalls per tree and mean basal area per tree. On the other hand, mean total and stipule litterfalls per tree showed no significant difference with mean basal area between 2nd and 3rd year. However, mean leaf litterfall per tree showed no significant difference with mean basal area per tree in 1st and 2nd year. The stipule litterfall, an indicator of new leaves, positively correlated to the leaf litterfall, which suggests that the leaf litterfall followed the production of new leaves. The stipule litterfall decreased up to a lower limit of the new leaves with increasing flower-propagule litterfall.