

琉球大学学術リポジトリ

沖縄島に生育するヒルギ科のマングローブ3種のフ ェノロジーとリターフォール

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論 文 要 旨

Abstract

論 文 題 目

Title Phenology and Litterfall of Three Mangrove Species in the Family Rhizophoraceae on Okinawa Island, Japan

(沖縄島に生育するヒルギ科のマングローブ3種のフェノロジーとリターフール)

Mangroves in the subtropical area of Japan are growing in the northern limits of their distributions. This study was conducted to understand vegetative phenology, reproductive phenology, as well as to evaluate and compare the litterfall dynamics of three mangrove species in the family Rhizophoraceae, *Bruguiera gymnorrhiza*, *Kandelia obovata*, and *Rhizophora stylosa* on Okinawa Island, Japan. Leaf and stipule litterfall of all the studied species occurred throughout the year, with distinct seasonal patterns, i.e., the highest in summer (June–August) and the lowest in winter (December–February). In case of *B. gymnorrhiza*, leaf litterfall was significantly correlated with monthly maximum wind speed and monthly day length, and stipule litterfall was significantly correlated with monthly mean air temperature, monthly maximum wind speed, and monthly rainfall. In case of *K. obovata*, leaf litterfall was significantly correlated with monthly mean air temperature, monthly maximum wind speed, and monthly rainfall, and stipule litterfall was significantly correlated with monthly day length and monthly maximum wind speed. In case of *R. stylosa*, leaf litterfall was significantly correlated with monthly maximum wind speed and monthly day length, and stipule litterfall was significantly correlated with monthly mean air temperature and relative humidity. Branch litterfall of all the studied species increased exponentially with increasing monthly maximum wind speed. In case of *B. gymnorrhiza*, flower and propagule litterfall were highest in autumn and summer, respectively, and lowest in winter. Flower and fruit litterfall peaked in August and in October–November, respectively for *K. obovata* and in July for *R. stylosa*. Propagule litterfall was highest in May for *K. obovata* and in September for *R. stylosa*. In case of *B. gymnorrhiza*, flower litterfall was significantly correlated with monthly mean air temperature, monthly air relative humidity, and monthly rainfall. In case of *K. obovata*, flower litterfall was significantly correlated with monthly sunshine hour and monthly mean air temperature. In case of *R. stylosa*, flower litterfall was significantly correlated with monthly day length. The average development period from flower buds to mature propagules was 9 months in *B. gymnorrhiza*, 11 months in *K. obovata*, and 11–12 months in *R. stylosa*. The conversion rate of flowers to propagules was 9.8 % in *B. gymnorrhiza*, 6.1 % in *K. obovata*, and 2.2 % in *R. stylosa*. *Bruguiera gymnorrhiza* tended to increase leaf production with increasing reproductive organ production, but *K. obovata* and *R. stylosa* showed a negative correlation between leaf production and reproductive organ production.

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