

THE ROLE OF NECTAR-FEEDING BATS (PTEROPODIDAE)
IN THE POLLINATION ECOLOGY OF THE GENUS
SONNERATIA AT SETIU MANGROVE
AREAS, TERENGGANU, MALAYSIA

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Lihat Sebelah

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(PTEROPODIDAE) IN THE POLLINATION ECOLOGY OF
THE GENUS *SONNERATIA* AT SETIU MANGROVE
AREAS, TERENGGANU, MALAYSIA

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ABSTRACT

To Mak and Abah, thank you for everything.

May Allah reward you a thousand fold.

ABSTRACT

This study was conducted to determine the role of flower-visiting bats as pollinators at the mangrove areas of Peninsular Malaysia. The mangrove trees of the genus *Sonneratia*, even though reported mainly pollinated by bats, are lacking in research regarding their pollination ecology. Therefore, the effectiveness of bats as pollinators was studied from the pollen loads on their bodies, as well as from pollen grains deposited on the stigmata during their visits to the *Sonneratia* flowers (*Sonneratia caseolaris*, *S. alba* and *S. ovata*). Observations of other nocturnal visitors of the flowers were conducted to further assess the relative importance of bats as pollinators. The flowering biology of the three *Sonneratia* species was also examined to infer the breeding system and reproductive synchrony of the trees and their pollinators. Bats were the effective pollinators of *S. caseolaris* and *S. alba* trees, depositing sufficient pollen grains on the stigmata for pollination. The flowering biology of these two *Sonneratia* species (flower morphometrics, nectar secretion rate, nectar sugar concentration and anthesis phase) also suggests that these species uses bats as their principal pollinators. Even though the morphology of the *S. alba* flowers and visitor observations indicated pollination by moths such as sphingids, bats nonetheless were responsible for depositing most of the pollen loads on the stigmata of the flowers. Examinations of reproductive parts (pollen and ovules) indicated that the three species show obligate autogamy. Exclusion experiments on *S. caseolaris* however showed reduced pollination success when bats were deterred from visiting the flowers, further confirming the importance of bats as *Sonneratia* pollinating agents as compared to other visitors.