Title:	Seed dispersal of a tropical deciduous Mahua tree, Madhuca latifolia (Sapotaceae) exhibiting bat-fruit syndrome by pteropodid bats
Authors:	Mahandran, V. (/jspui/browse?type=author&value=Mahandran%2C+V.) Murugan, C.M. (/jspui/browse?type=author&value=Murugan%2C+C.M.) Marimuthu, G. (/jspui/browse?type=author&value=Marimuthu%2C+G.) Nathan, P.T. (/jspui/browse?type=author&value=Nathan%2C+P.T.)
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Abstract:	Pollination and seed dispersal are two important phases of the reproductive cycle in plants and are usually performed by different groups of animal taxa in tropics. However, in Mahua tree, Madhuca latifolia (Sapotaceae) both pollination and seed dispersal are predominantly performed by pteropodid bats. We report the foraging and seed dispersal strategies of three sympatric pteropodid bats, Cynopterus sphinx, Rousettus leschenaultii and Pteropus giganteus, during two successive fruiting seasons of M. latifolia. These sympatric fruit bats exhibited spatio-temporal variation while foraging and consumed fleshy mesocarp of fruits and discarded the seeds. Fruit processing time corresponded to the size of the bat species (P. giganteus > R. leschenaultii > C. sphinx); the larger the bat, the more number of fruits they consumed. P. giganteus predominantly consumed the fruits in situ (87% of the times). However, during peak foraging hours, when intraspecific aggressive interactions were high, these bats flew away with fruits from the parent tree (13%), and transported seeds to longer distances (at a time, which they carried = 7.2 km). On the contrary, R. leschenaultii and C. sphinx plucked one fruit at a time and carried to their feeding roosts for consumption. The feeding roosts of medium-sized fruit bat R. leschenaultii were located farther than that of the small-sized C. sphinx, i.e., 52.81 m and 34.18 m, respectively. Comparison of seed germination rates showed no significant variation between bat-dispersed seeds (R. leschenaultii: 95% and C. sphinx: 90%) and control seeds (manually extracted: 90%). As intact fruits did not germinate, mesocarp removal and mobility of seeds away from the parent tree were the main advantages gained by M. latifolia from the foraging bats suggesting the existence of a resource−service mutualism between the fruit bats and bat fruits.
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