

Abstract

The magnitude of dengue transmission depends largely on the level of human–vector contact. Therefore, knowledge regarding the biting periodicity of mosquitoes is crucial to determine transmission periods' risk, and in planning personal protection measures. Dengue vectors are day-active and endure transitory periods of starvation overnight. However, it is unclear how their blood feeding activity pattern is related to body size when temporarily deprived of their main source of energy—sugar. We examined changes in *Aedes albopictus* diurnal biting activity, taking into account larval nutritional history and adult starvation. Overall, large body size and non-starvation conditions were associated with better blood feeding success, but these parameters did not significantly modify the timing of first blood feeding attempt. Females of both sizes showed significant temporal variations in their blood feeding activities. Under conditions of starvation, blood meal uptake was much greater in large females from morning to evening. Similar variations feeding activity were observed in small females, except in the morning. Under non-starvation conditions, the blood feeding activity of small mosquitoes tended to decrease over time, whereas blood meal uptake activity was high and remained almost constant from morning to evening for larger mosquitoes. This work emphasizes the importance of body size and hunger on the dynamics of vector–host interaction and has important implications for the development of novel strategies for prevention of disease transmission. Knowing when dengue vectors actively bite during the day can help in timing effective personal protective measures.

Key words: *Aedes albopictus*, Host feeding patterns, Body size, Starvation