Dichogamy: Undisclosed sexual systems of genus *Bridelia* in Sri Lanka

M A Dias* and R M C S Ratnayake

Department of Botany, University of Kelaniya, Sri Lanka.
Ashinidias90@gmail.com

Family Phyllanthaceae express diverse of dichogamy sexual systems including duodichogamy, heterodichogamy and temporal dioecy. Twenty three individuals of *Bridelia retusa* in three sampling sites (Kelaniya university premises, Kottawa forest and Naththandiya) and six individuals of *B. moonii* in Kottawa forest were studied weekly for their reproductive phenology during flowering season (seven months).*B. retusa* showed four flowering patterns as; alternate male (7-19 days) to female (7-15 days) in 34.78% of individuals, or female (7-17 days) to male flowering pattern (14-17 days) indicating heterodichogamy; among them 26.09% produced male flowers and then female flowers, but without a third flower phase and 8.70% first produced female flowers, followed by male flowers while 30.43% individuals produced male flowers (12–14 days), then female flowers (7–14 days), followed by another male flower phase (12–23 days) which expressed duodichogamy. Two individuals produced female to male to female flowering pattern and only one individual produced female to male to female to male to female to male flowering pattern. Therefore temporal dioecy was expressed in 13.04% of individuals and also pure males were recorded as 13.04%. These sexual alternations ensure the mating within individuals and prevent geitanogamyit ensuring xenogamy. Flower buds did not bloom (stagnated) during rainy season as a mechanism to avoid wastage of energy for reproductive allocation. The 6 individuals of *B. moonii* showed three flowering patterns: duodichogamy (33.33%), heterodichogamy (33.33%) and pure males (16.67%). Both *Bridelia* species express duodichogamy, heterodichogamy and additionally *B. retusa* show temporal dioecy. This study provides new information which enriches the limited literature on dichogamy in *Bridelia* species. Also the documentation of dichogamy in *Bridelia* species may help to solve problems related to reproductive assurance of *Bridelia* species. It also identified the significance of maintenance of sufficient densities of individuals of *B. mooniii* in a population as it produces pure male flowers.