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Monomorphic enantiostyly and reproductive biology of *Osbeckia octandra* and *Melastoma malabathricum*

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Although stylar polymorphism of angiosperms plays a significant role in pollination, few studies have been conducted on stylar polymorphism in relation to reproductive success in tropical plants. To fill this knowledge gap, the present study was designed to investigate stylar polymorphism of two selected Melastomataceae plants; *Osbeckia octandra* (Heen Bovitiya) and *Melastoma malabathricum* (Kata Kalu Bowitiya) with respect to their reproductive success. Data on floral level phenology, stylar polymorphism, floral visitors, breeding systems and fruiting success of two species were collected by gathering field data from Hantana, Pilikuththuwa and Meethirigala forests. Floral level phenological data collection was done at the peak flowering stages in 20 tagged individuals for both species in each site. Statistical analysis was done using One-way ANOVA at $p=0.05$. Floral morphology and breeding system data (pollen-ovule ratio, and out crossing index) revealed that both species are xenogamous and entomophilous. The pollination syndrome is melittophily and buzz pollination is required for anther dehiscence with poricidal pollen dispersal in both species. Even though, both species exhibited monomorphic enantiostyly, mirror image flowers were present only in *O. octandra*. Though pollination and fruiting success of both *O. octandra* and *M. malabathricum* do not significantly influence by enantiostyly, it helps xenogamy to maintain long term sustainability of the species. The effective pollinators of *O. octandra* and *M. malabathricum* were *Amegilla* spp. and *Xylocopa* spp. respectively. Anther dimorphism of *M. malabathricum* indicates labor division by yellow anthers for feeding and purple anthers for pollination. Percentage of pollen germination in purple anthers was significantly higher than that of the yellow anthers ($p=0.05$). Late stage flexistly ensures selfing and enhance reproductive potential, if crossing is not successful. Information gathered from this study will be useful to strengthen the scientific understanding in reproductive biology of tropical plants and facilitate the future hybridization and breeding designs to improve the ornamental value of the species.

Key words: Stylar polymorphism, *Osbeckia octandra*, *Melastoma malabathricum*, Pollination

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