

The temporal change in floral scents affects pollinator's behavior in *Homalomena propinqua* (Araceae)

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Homalomena propinqua (Araceae) is a common understory herb in lowland dipterocarp forests in Borneo, and emits very characteristic odor in the morning. The inflorescence is monoecious and protogynous one, and changes the sexual function from female to male during anthesis. Pollinators of the *H. propinqua* are two species of beetles, *Parastasia bimaculata* Guerin (Scarabaeidae) and *Dercetina sp.* (Chrisomelidae).

In our preliminary study, we showed that both beetle pollinators visited inflorescences mainly at am 7:00-9:30, and pollinators' arrival was consistent with the thermogenesis of spadices. Moreover, *P. bimaculata* visited the female phase inflorescences more than the other phase ones, on the other hand *Dercetina sp.* visited each inflorescence regardless of the sexual stage. In this study, we suppose that the behavior of beetle pollinators may be affected by the amount of attractant compounds in the floral scents that guide distant pollinators to inflorescences. To examine the relationship among floral scents and beetle pollinators' behavior, we carried out the chemical analysis of floral scents with GC and GC-MS, and attractant tests in the field with synthetic compounds of major components in the floral scents.

As the results of the chemical analysis, 18 volatile compounds were detected in floral scents of *H. propinqua*, and 14 compounds were identified. Major compounds are 2-Butanol, 2-Heptanol and Veratrole (1,2-Dimethoxybenzene), and we used these compounds for attractant tests to pollinators. Behavioral tests showed that *P. bimaculata* was attracted mostly by the mixture of 2-Butanol + 2-Heptanol + Veratrole, while *Dercetina sp.* was attracted by Veratrole. The amount of both attractant compounds in the floral scents were increased at 7:00-9:30, and consistency with the thermogenesis and pollinators' arrivals. This result supports that the thermogenesis promotes the vaporization of attractant compounds in floral scents. Meanwhile, the amount of 2-Butanol + 2-Heptanol + Veratrole in floral scents was significantly abundant in the female phase inflorescences, the amount of Veratrole didn't change through every sexual phases. These results suggest that *P. bimaculata* choose the female phase inflorescences because of emitting the largest amount of attractant compounds, while *Dercetina sp.* is not affect the amounts of the compounds. In future, we'll examine the relationship between the pollination efficiency of both pollinators and the pollinator's behavior to the attractant compounds.