Effects of flower characters on interactions with diverse flower visitors

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Abstract

Flowers are visited by diverse organisms, including pollinator animals, non-pollinator animals, and microbes. While how flower characters alter their interactions with pollinators has been well studied, our understanding of how they affect diverse flower visitor communities other than pollinators is limited. There are mainly two limitations; the lack of experimental study about the ecological function of flower characters in interactions with non-pollinators; and the insufficient knowledge of several flower visitors, such as Flower microbes. For the former, I conducted experimental studies on the function of the petal surface in interactions with nectar-thieving ants in Chapter 2. For the latter, I examined comprehensive observations of the flower bacterial community within a plant community by DNA metabarcoding of the 16S rDNA in Chapters 3 and 4. The results of Chapter 2 showed that slippery structures on the perianth's surface of *Codonopsis lanceolata* and *Fritillaria koidzumiana* hinder the entrance of nectar-thieving ants, indicating that the surface structure can alter the flower visitor community. Further, the results of Chapter 3 suggested that plant species have a substantial effect on the flower bacterial community, suggesting the significant effect of interspecific variation in flower characters on flower-microbe interactions. The results of Chapter 4 elucidated the drastic effect of flower phenology on the flower bacterial community of *Solidago altissima*. Taken together, these results indicate that flower characters can alter not only their interaction with pollinators but also diverse flower visitors.