

COMMUNITY-WIDE CONSEQUENCES OF SEXUAL DIMORPHISM: EVIDENCE FROM NECTAR MICROBES IN DIOECIOUS PLANTS

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Study Description

We examined how plant sex affected the community structure of nectar-colonizing microbes. These microorganisms, including bacteria and fungi, were more abundant in male flowers than in female flowers, with the identity of the dominant microbial species also affected by flower sex. Our results suggested that this sexual difference arose because female and male flowers differed in how they responded to visits by nectar-feeding insects that bring microorganisms into nectar and how the history of the arrival of these microbes influenced the development of microbial communities in nectar.



Photo 1. Female flowers of *Eurya emarginata* visited by *Stomorhina obsoleta* (blow fly). An agar plate showing colonies of nectar-colonizing yeasts isolated from a female *E. emarginata* flower is superimposed. Photo credit: Kaoru Tsuji and edited by Yuichiro Kanzaki.



Photo 2. Male flowers of *E. emarginata* visited by *S. obsoleta* (right) and *Dasysyrphus bilineatus* (hoverfly, left). An agar plate showing colonies of nectar-colonizing yeasts isolated from a male *E. emarginata* flower is superimposed. Photo credit: Kaoru Tsuji and edited by Yuichiro Kanzaki.



Photo 3. Left: *E. emarginata* in their coastal habitat in Wakayama, Japan. Top left: flowers of *Crepidastrum keiskeanum* visited by *S. obsoleta*. Top right: flowers of *Farfugium japonicum* visited by *Phytomia zonata* (hoverfly). Bottom right: male flowers of *E. emarginata* visited by *S. obsoleta* and *P. zonata*. *Eurya emarginata* shares flower visitors with *C. keiskeanum*, *F. japonicum*, and other species that grow near *E. emarginata*. These visitors may transport nectar microbes across locally co-occurring plants of these different species. Photos were taken by Kaoru Tsuji and configured by Yuichiro Kanzaki.

These photographs illustrate the article “Community-wide consequences of sexual dimorphism: evidence from nectar microbes in dioecious plants” by Kaoru Tsuji and Tadashi Fukami published in *Ecology*. <https://doi.org/10.1002/ecy.2494>