

Host specificity as a promoting factor of diversification of phytophagous insects

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Research
Field

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Introduction



Henosepilachna niponica (Coleoptera: Coccinellidae) mating on its host plant, thistle (*Cirsium* sp.; Asteraceae)

Most species of phytophagous insects are highly host specific, and this "host specificity" is regarded as one of the factors that have promoted the notable diversification of this animal group. Divergent natural selection on different host plants often incidentally promotes the development of reproductive isolation between insect populations. My research interest is ecological and genetic determinants of host plant specificity, and the role of host-specialization on diversification of closely related insect populations. Main research methods in my laboratory at the present are field observations and rearing experiments, using several herbivorous beetle species (belonging to Coccinellidae and Chrysomelidae) and their host plants.

Advisory capability and topics for public lectures

Advisory capability:
Ecological researches on phytophagous insects, in particular elucidation of host plant specificity.

Viewpoints of research

Field observations are the most important and indispensable, because every experiment should be planned to elucidate/understand the phenomena occurring in the wild.

At the same time, field observations are sometimes not effective to detect the phenomena occurring in the wild. For example, local adaptation by conspecific insect populations to qualitative variation of conspecific host-plant populations is often completely cryptic, and can be detected only via reciprocal rearing experiments with the insect and plant populations.

Thus, field observations and laboratory experiments work complementarily in my research activities.



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