

FUNCTIONAL DIVERSITY OF THE BACTERIAL MICROBIOTA OF INDUSTRIALLY PRODUCED PARASITOIDS

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ELI Day

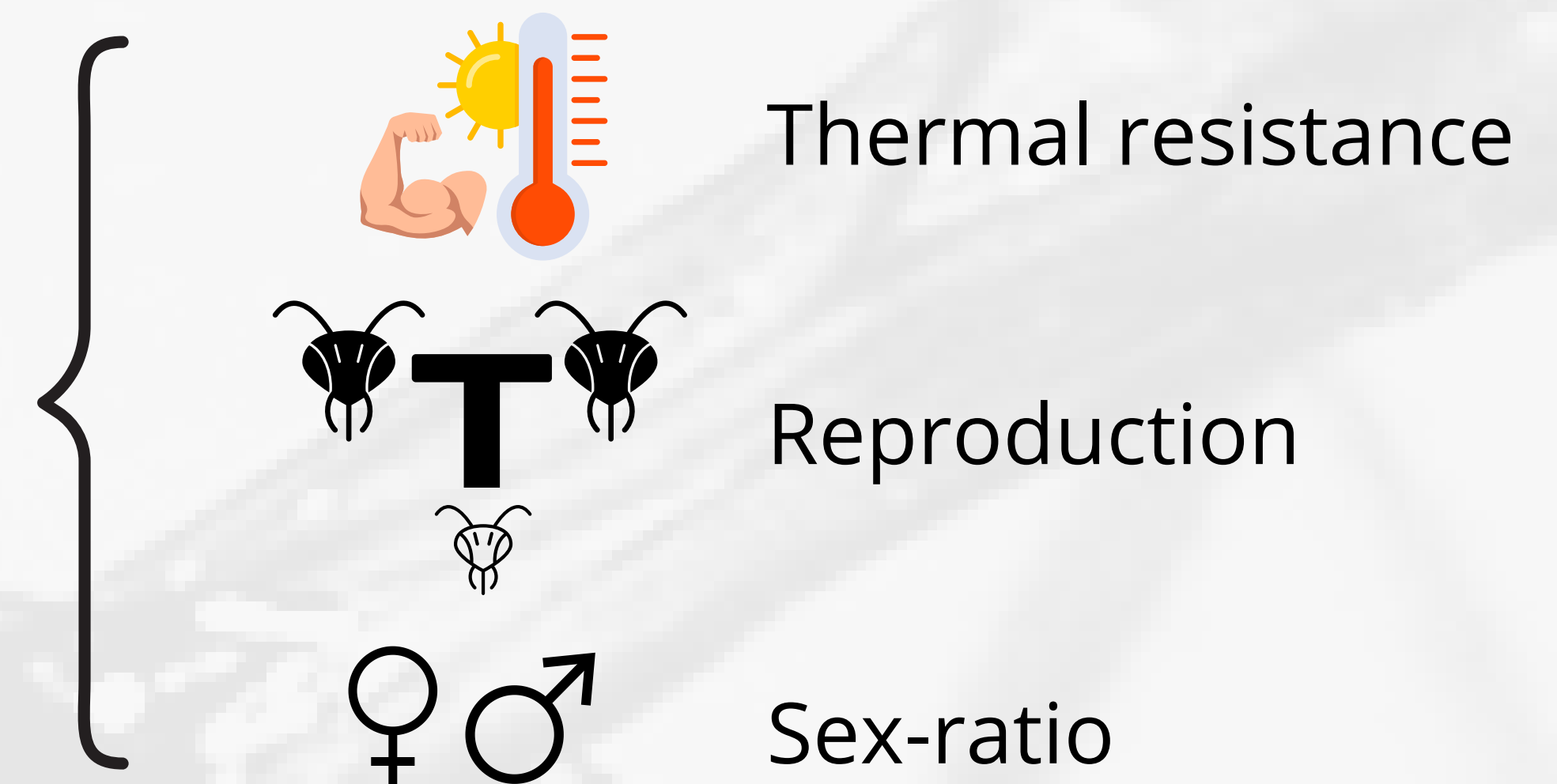
BACKGROUND

Insect biology depends to a large extent on the diversity of the microorganisms with which they interact closely and which form their microbiota. The bacterial dimension of the insect microbiota has received increasing attention in recent years, as it has been shown to play a central role in the evolutionary ecology of insects, influencing their phenotype in many ways. However, the diversity of the microbiota of parasitoids is little known, even though these insects are mass-produced for biological control.

Virobiota



Bacterial microbiota



- (1) How diverse is the bacterial microbiota of parasitoids wasps? (2) Do closely related species wasps share similar microbiota? (3) Do mass-produced parasitoids harbor reproductive manipulators (e.g., *Wolbachia*)? (4) Can such symbionts be harnessed to optimize parasitoid production?

Biological models



Aphidius colemani
(Hymenoptera: Braconidae)



Aphidius matricariae
(Hymenoptera: Braconidae)



Aphidius ervi
(Hymenoptera: Braconidae)



Praon volucre
(Hymenoptera: Braconidae)



Ephedrus cerasicola
(Hymenoptera: Aphidiidae)

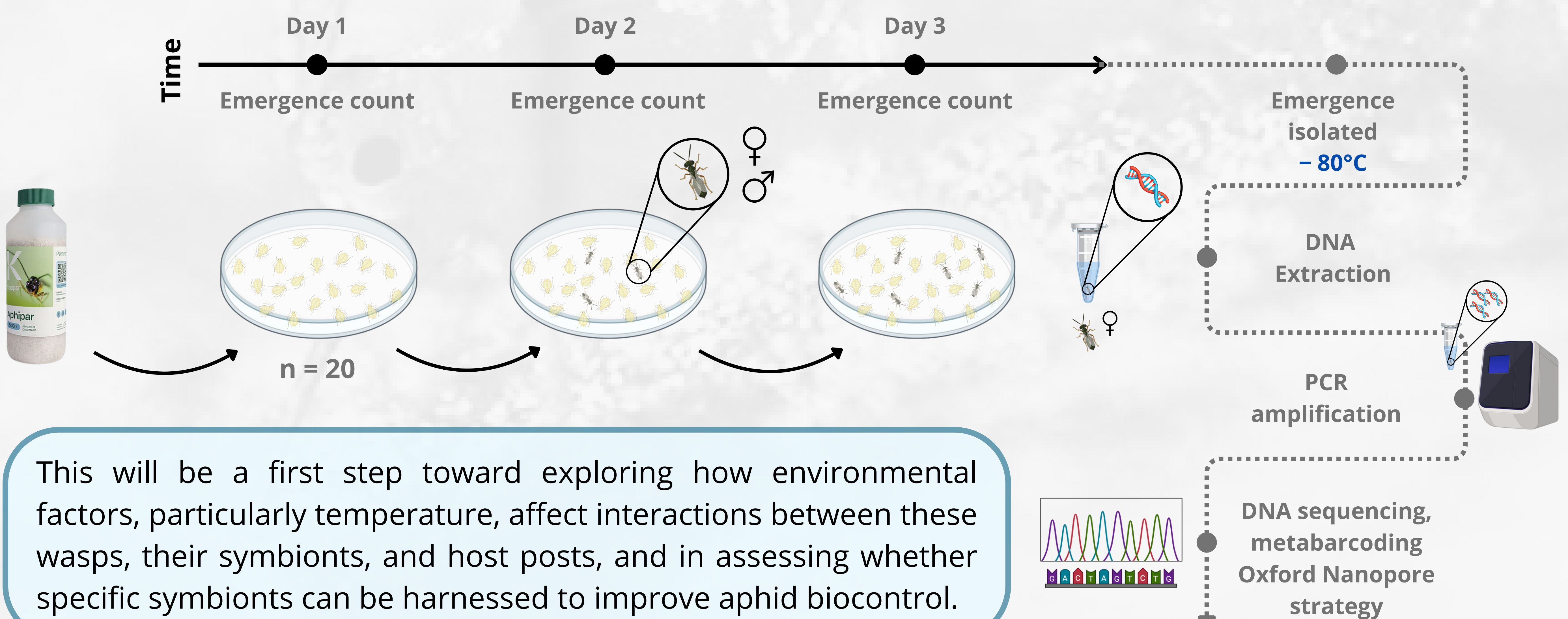


Aphelinus abdominalis
(Hymenoptera: Aphelinidae)

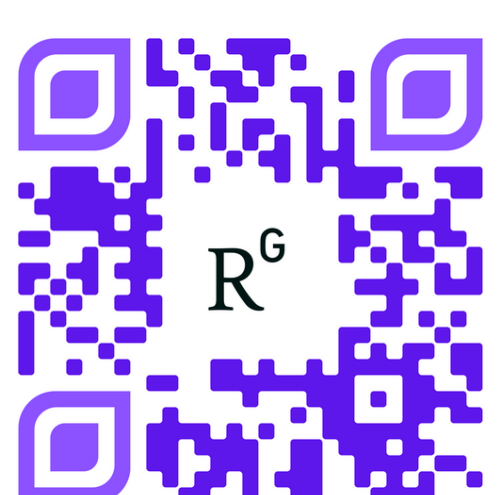
The parasitoid species used were selected for their widespread use in biological control programs targeting aphids (e.g., *Myzus persicae*, *Aulacorthum solani*, *Macrosiphum euphorbiae*, *Acyrtosiphon pisum*).

This study will provide the first comprehensive map of the bacterial microbiota of parasitoid species of agronomic interest.

METHODOLOGY



This will be a first step toward exploring how environmental factors, particularly temperature, affect interactions between these wasps, their symbionts, and host posts, and in assessing whether specific symbionts can be harnessed to improve aphid biocontrol.



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DID YOU KNOW?

This work is part of Trans-pest (Interreg project), which aims to assess the impact of climate variations on the effectiveness of bioinsecticides and to optimize their use to better address climate change challenges



Interreg

France - Wallonie - Vlaanderen

Biocontrol 4.0
Trans-Pest

