



Effects of elevated CO₂ concentrations on host finding behavior of corn leaf aphids Rhopalosiphum maidis

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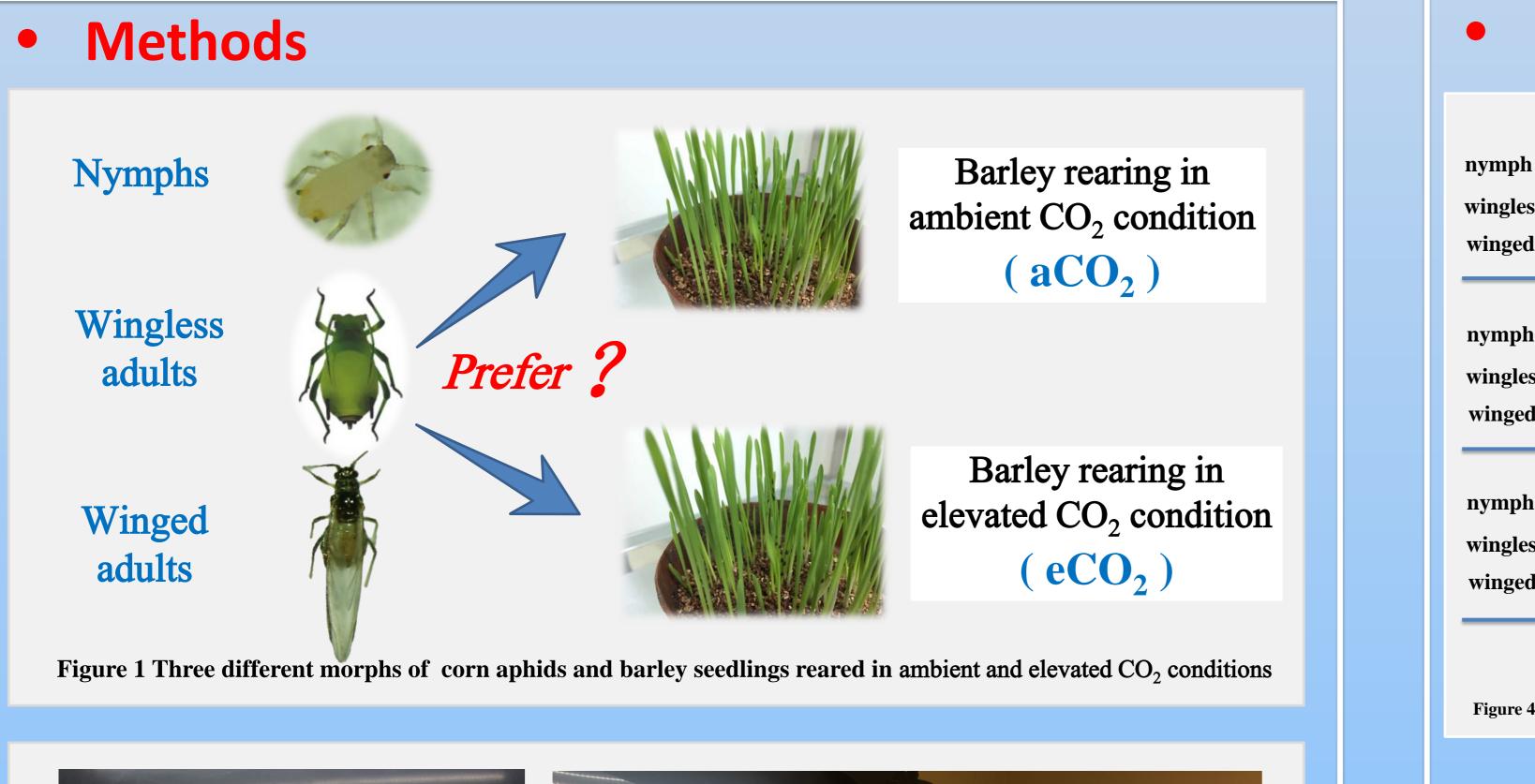
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Objectives

Chambers

We aim at evaluating the impact of elevated CO₂ concentrations on host searching behavior of nymphs, wingless

and winged corn leaf aphids to barley seedlings.



Results

Te	ested N	lo. No responses / Responses
nymph	180	22.8
wingless	180	8.9
winged	180	42.8 57.2
		Only searching / Make choice
nymph	139	49.6 50.4
wingless	164	5.5
winged	103	13.6
		Clean air / aCO ₂
nymph	70	37.1 62.9
wingless	155	26.5 73.5
		32.6

Figure 4 Choice (%) of corn leaf aphids toward clean air vs. aCO₂ barley seedling

Clean air vs. eCO₂ barley seedlings

Clean air vs. aCO₂ barley seedlings

Nymphs, wingless and winged adults preferred the odors of aCO₂ barley seedlings to clean air.

Tested No. No responses / Responses Ρ 180 *** 81.7 nymph 16.1

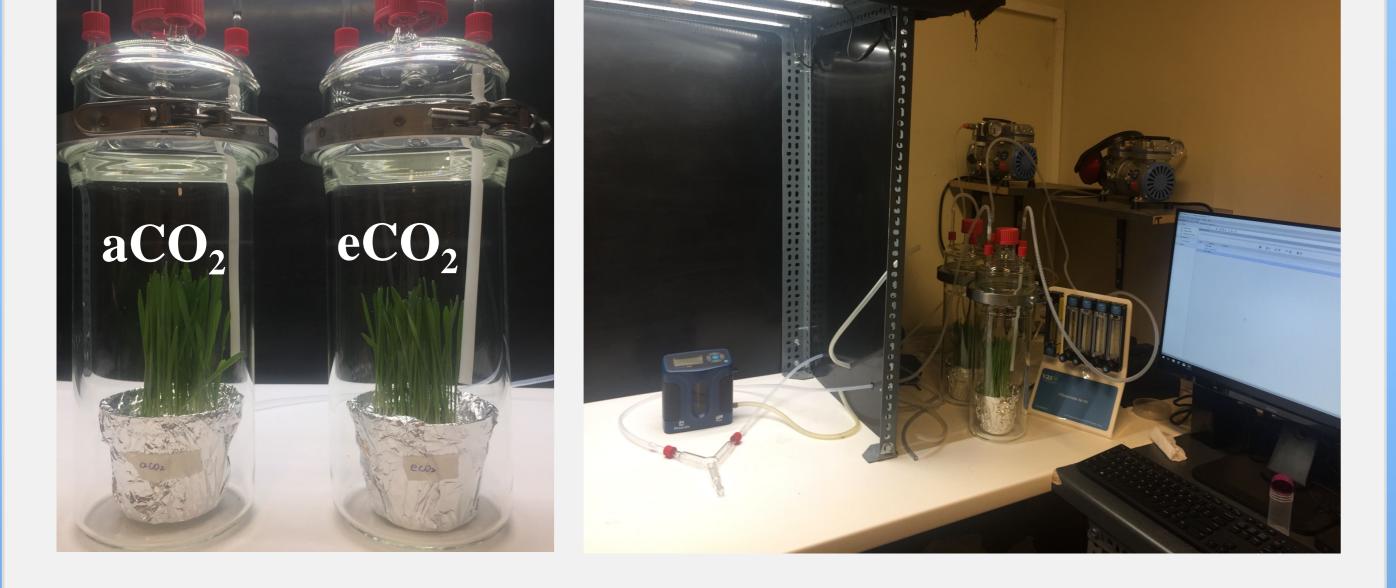
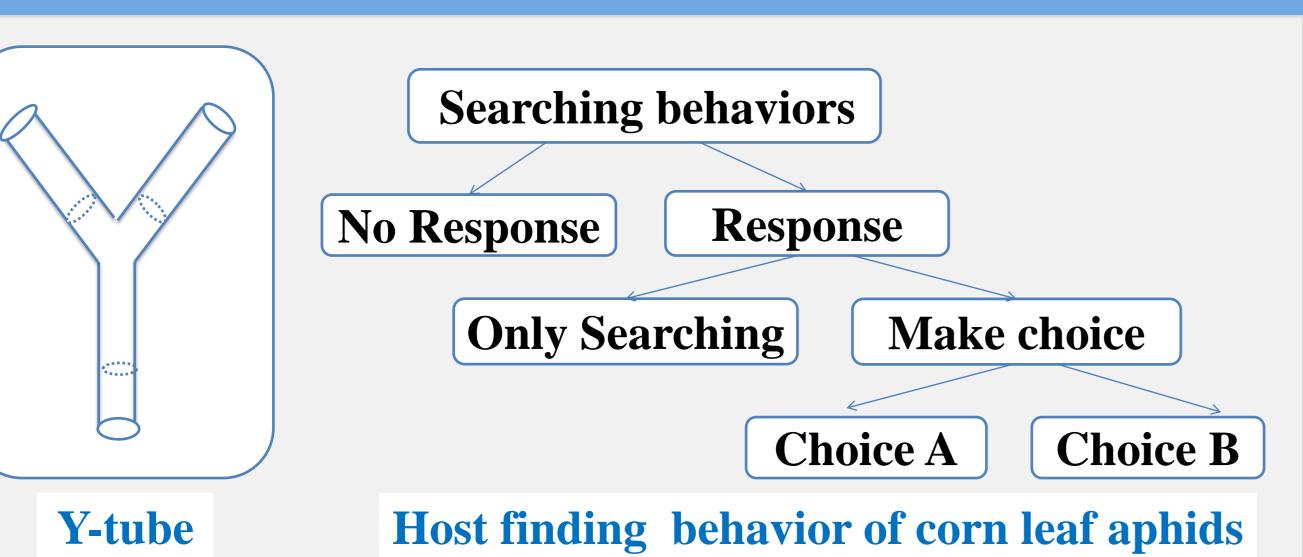
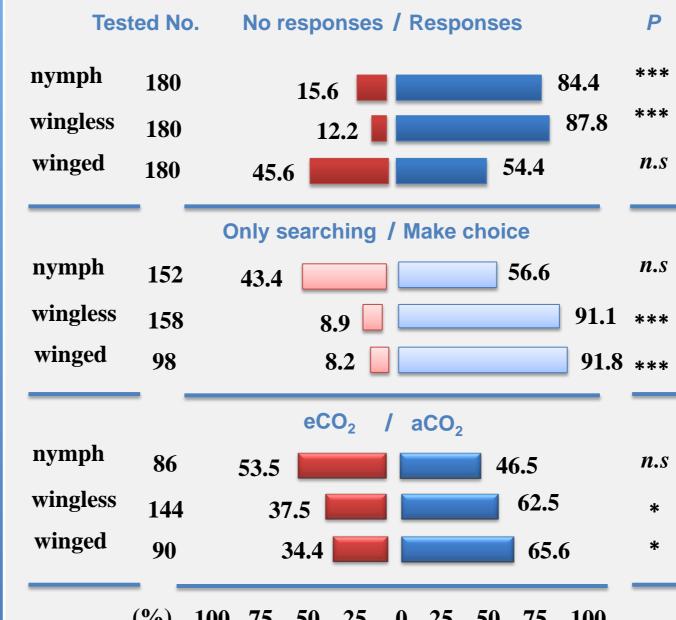
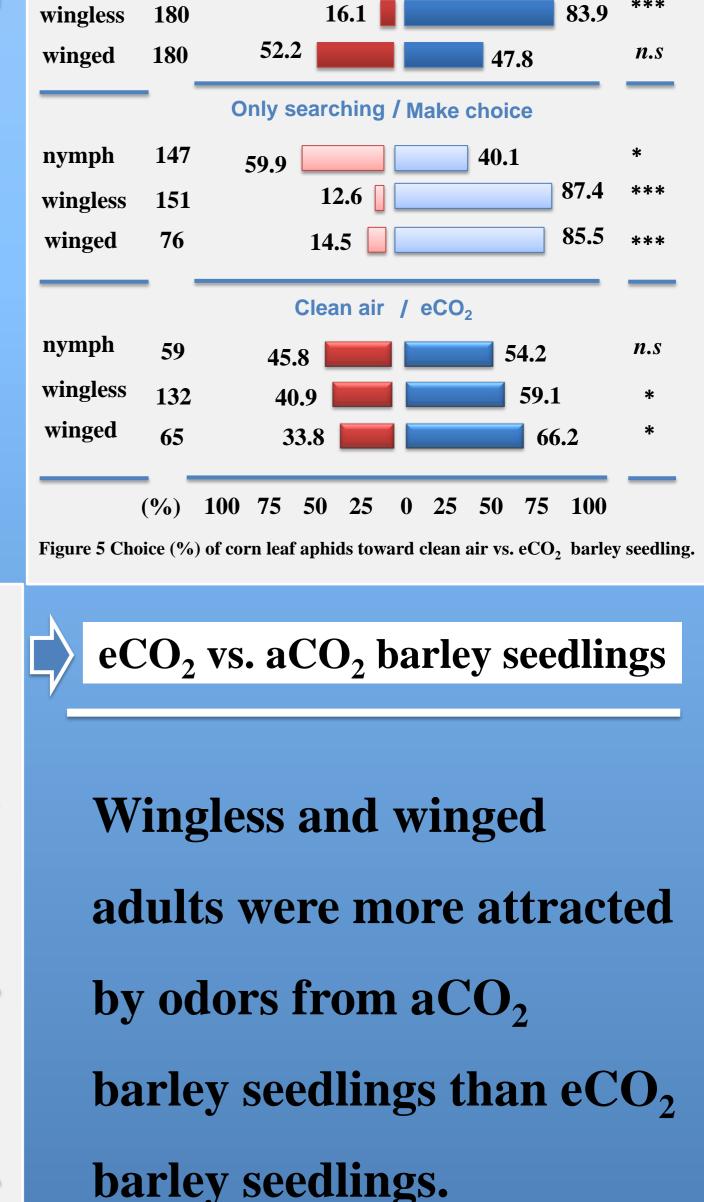


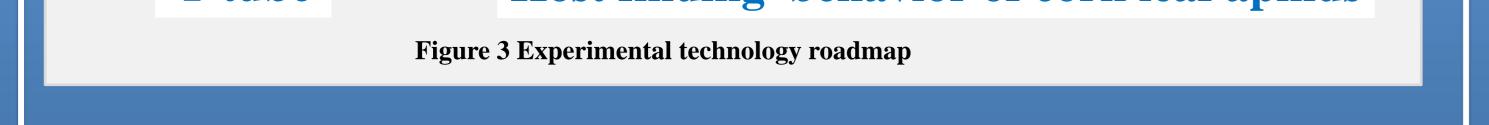
Figure 2 Experiment equipment



Wingless and winged adults like choosing the odors of eCO₂ barley seedlings when tested against clean air.







(%) 100 75 50 25 0 25 50 75 100

Figure 6 Choice (%) of corn leaf aphids toward eCO₂ vs. aCO₂ barley seedling.

 $(* P \le 0.05 ; **P \le 0.01 ; ***P \le 0.001)$

Conclusion and Discussion

Winged and wingless adults preferred the odors of aCO₂ barley seedlings when tested against eCO₂ barley seedlings or clean air. Nymphs preferred searching in the Y tube and hard to make a choice, probably because their antenna sensing systems haven't well developed and could not distinguish the odors clearly.



