



# The role of protective symbionts in mediating aphid interactions with beneficial rhizobacteria and parasitoids on barley

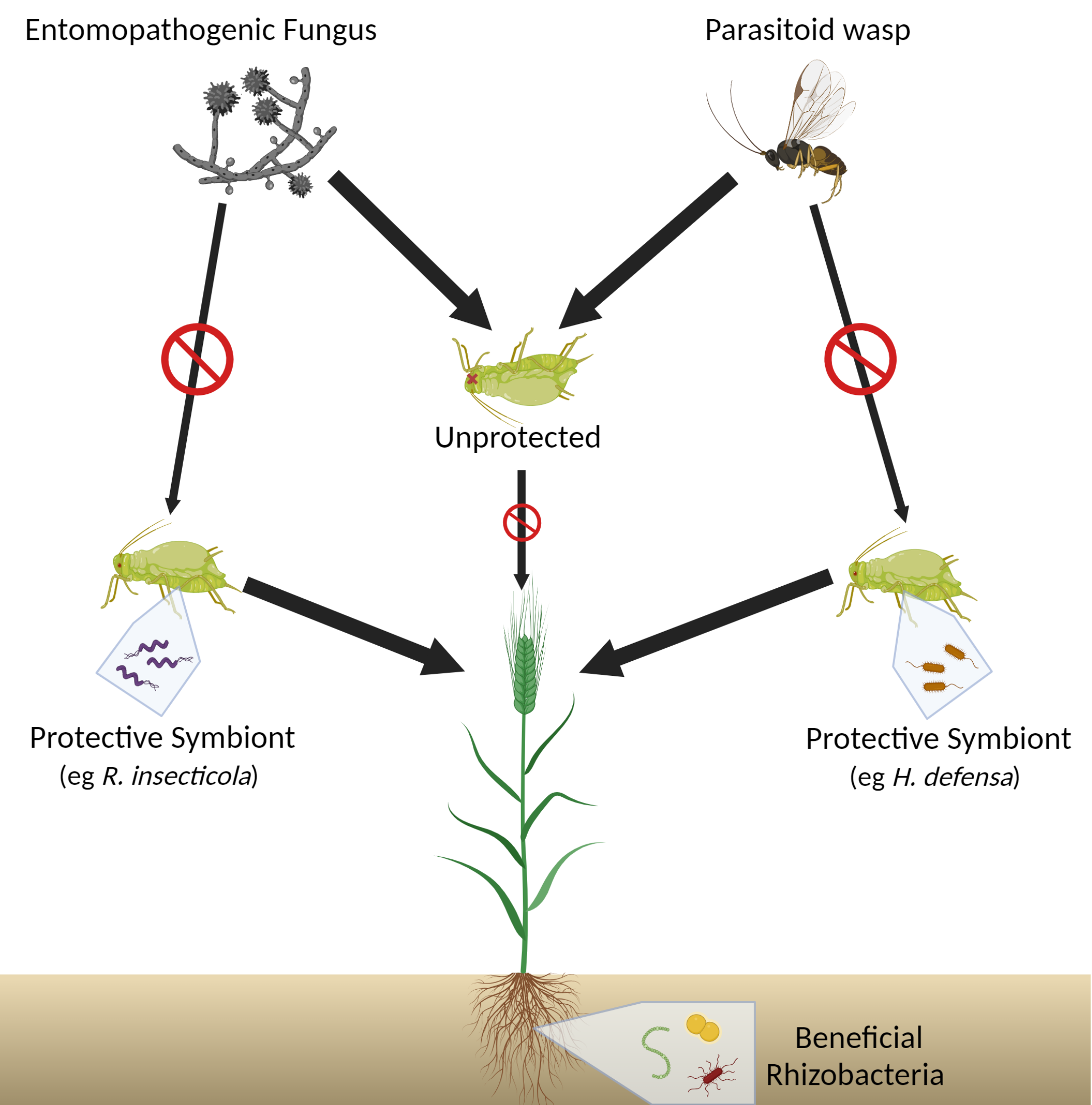
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## Background

- Aphids are insect pests that transmit devastating plant viruses. But natural enemies such as parasitoids and entomopathogenic fungi can reduce aphid populations through biological control.
- Beneficial rhizobacteria inoculation can boost plant defences against aphids, with strong potential for sustainable agriculture.
- Aphids gain resistance against natural enemies when infected with protective bacterial endo-symbionts, but these can represent a cost to aphid reproductive output. Therefore, protective symbionts can impact aphid population/community dynamics and disrupt biological control.
- The effects of endosymbiont infection on aphid responses to rhizobacteria inoculation of host plants are unknown.

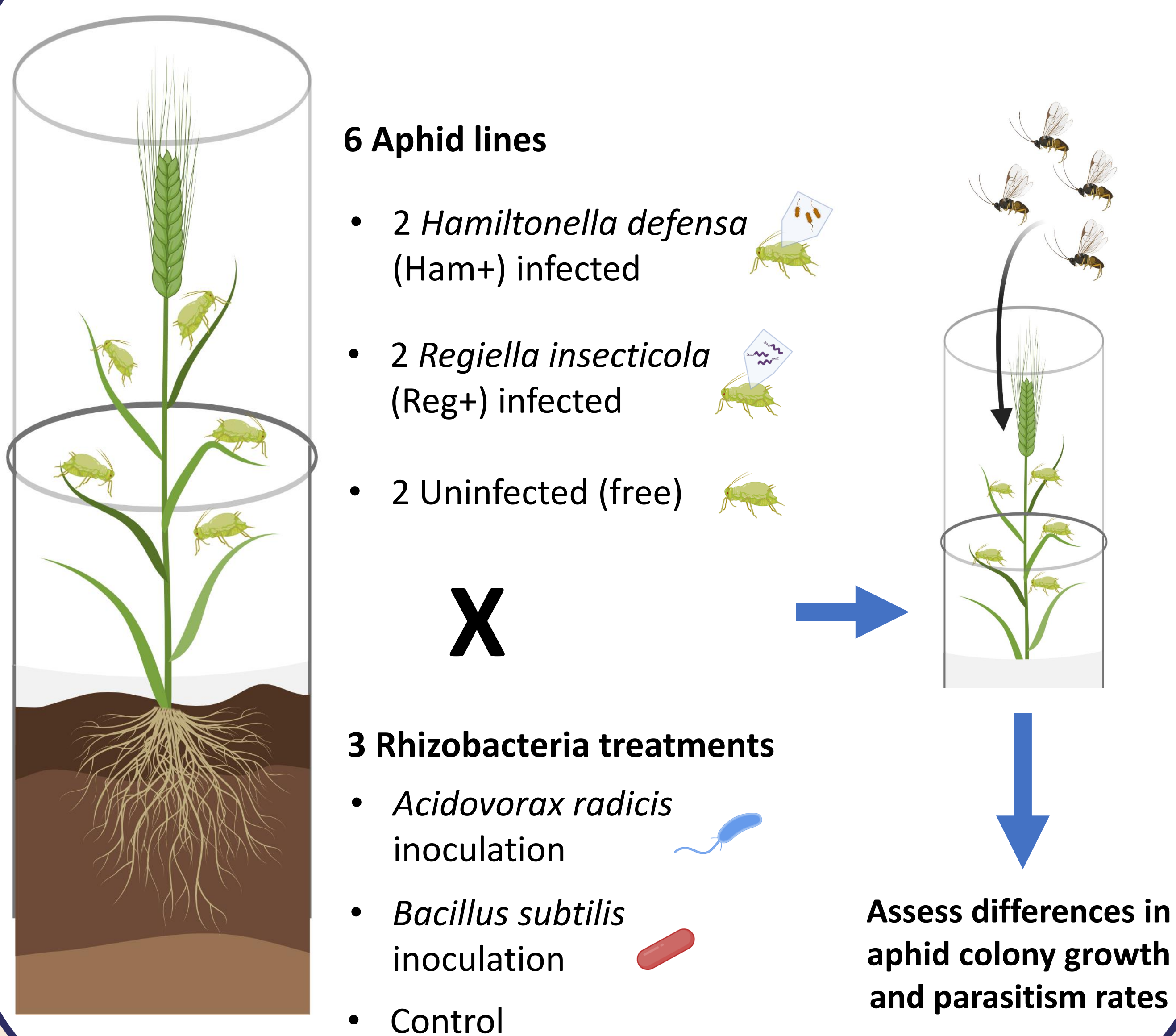
## Sitobion avenae community (Study system)



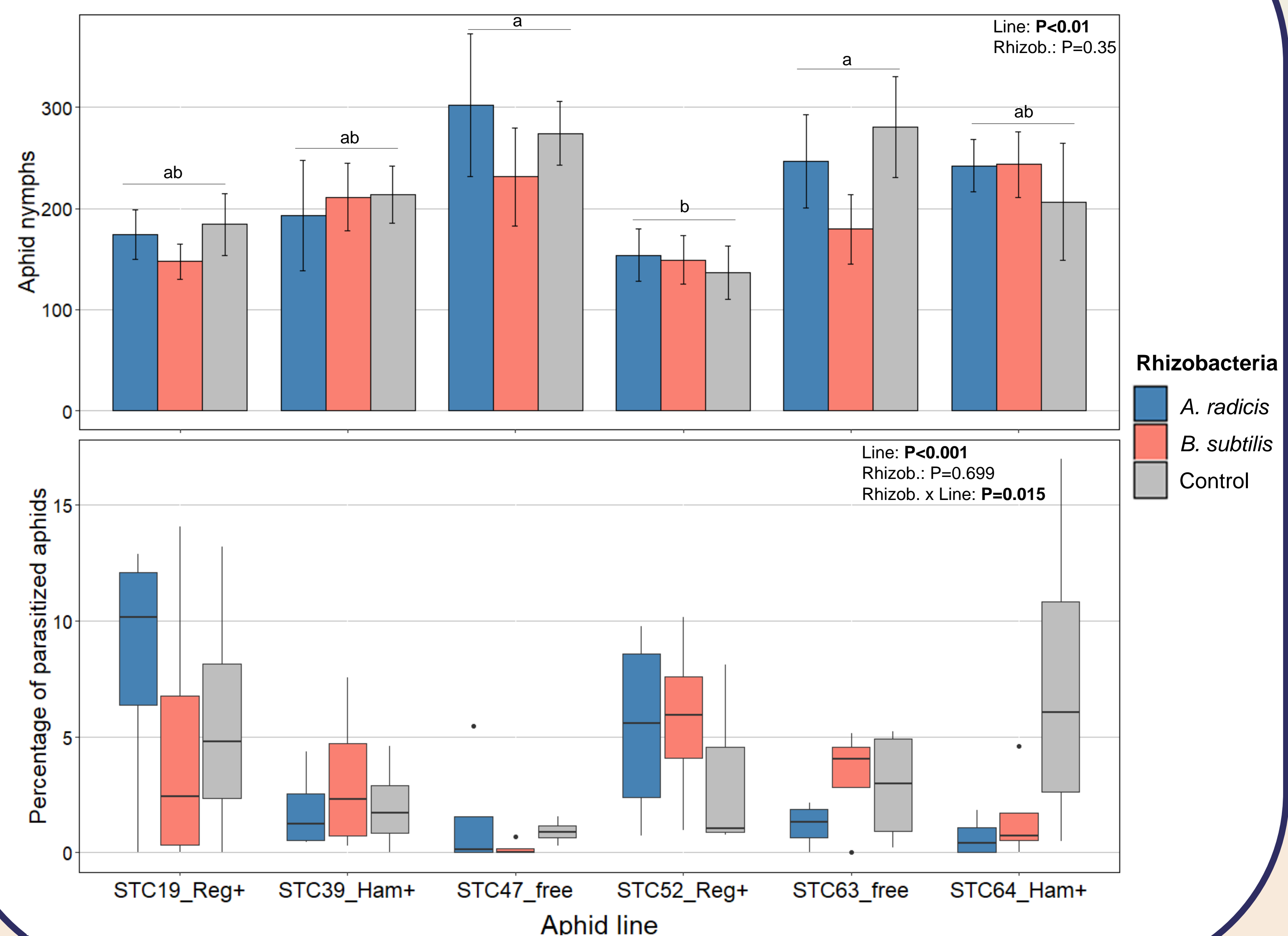
## Objective

Investigate the effects of plant rhizobacteria inoculation on aphid lines with different symbiont infection status and if these cascade on parasitism

## Aphid symbionts X Rhizobacteria experiment methods

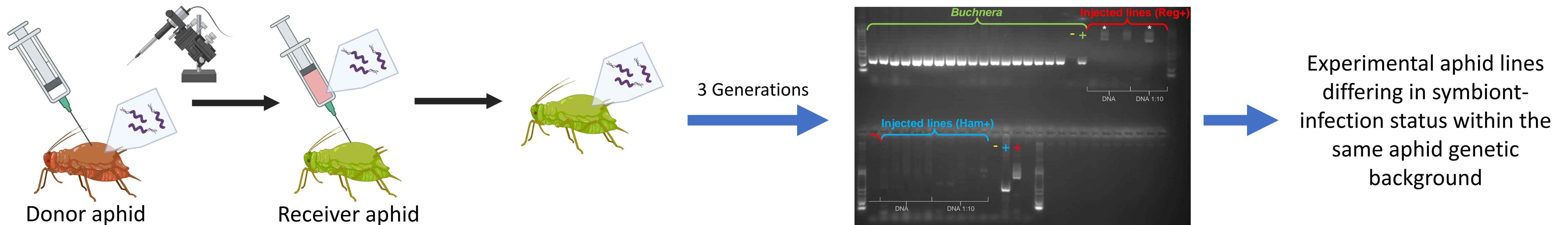


## Aphid lines differ in population growth and susceptibility to parasitoids No effect of Rhizobacteria inoculation on aphid population growth and parasitism



## Future steps

Microinjection protocol to transfer symbionts between aphid lines and disentangle aphid-genotype from symbiont-infection effects in future experiments



Explore the effects of plant rhizobacteria inoculation on the prevalence of aphid symbionts and parasitoids in barley fields

