



# Effect of flower presentation method on parasitoid wasp survival

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## Summary

Reliable testing of the suitability of various flower species for natural enemies is an important step in developing a conservation biological control programme. Laboratory tests showed that the suitability of nine candidate flower species for the parasitoid wasp *Aphidius ervi* varied tremendously. However, it did not matter whether the flowers were presented as either excised flower shoots in water or flowers that remained attached to a rooted plant. Nonetheless, the effect of flower presentation method should not be discounted in future studies involving other flower species or different insect species.

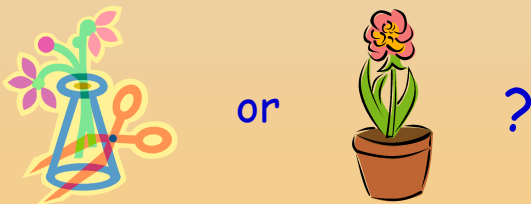
## Introduction

The first stage in developing a conservation biological control strategy typically involves ranking the suitability of various plant species as food resources for the target natural enemy species in the laboratory. It is unclear whether excised flower shoots in water will generate similar effects on the life history traits of a natural enemy compared with those using flowers remaining attached to a rooted plant. Both methods have been used in previous studies, yet none has quantified this effect. In this study we examined the influence of flower presentation method for nine flower species on the fitness of a parasitoid wasp.



## Methods

In the laboratory recently emerged adult male and female parasitoid wasps (*Aphidius ervi*, Hymenoptera: Braconidae) were provided with excised flower shoots in water or flowers that remained attached to a rooted plant. A total of nine flower species were tested along with a nil, water and 2 M solution of glucose-fructose as controls. Wasp survival was monitored daily over their lifespan to determine longevity. Flowers were exchanged every 2-5 days.



## Results

The longevity of adult *A. ervi* was significantly affected by the various flower species (Fig. 1). Nevertheless, flower presentation method had no significant affect on *A. ervi* longevity; mean ( $\pm$  SE) longevity in both treatments was 7.4 ( $\pm$  0.3) days. The mean longevity of male (7.1  $\pm$  0.2) and female (7.2  $\pm$  0.4) *A. ervi* was not significantly different.

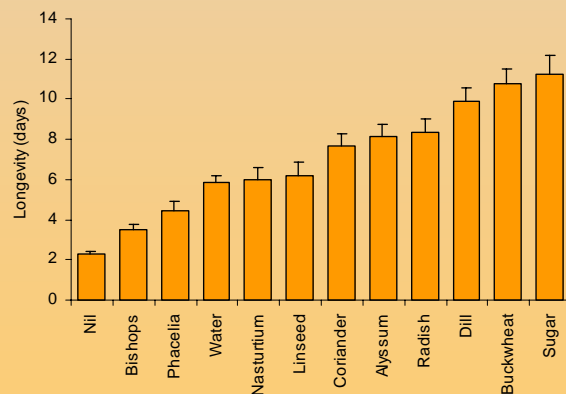


Fig. 1. Longevity of *Aphidius ervi* on various flower species

## Conclusion

There were surprising differences in the suitability of the candidate flower species. Phacelia, which was thought to be good source of nectar, turned out to be poor for *A. ervi*, while buckwheat maintained its status as an excellent insectary plant. Our prediction that parasitoid longevity would be lower on excised flowers compared with intact flowers for each plant species was not supported. Thus, it was unlikely that plant nectar quality and quantity were altered as a result of appreciable changes in the physiological condition of the excised flowers. The results highlight the value of reliable testing of candidate flower species, and although we found no affect of flower presentation method, biological control practitioners should be mindful of using excised flower shoots to mimic intact flowers in future studies.