

The impact of two biological control agents, *Passalora ageratinae* and *Baeodromus eupatorii*, on *Ageratina adenophora* (crofton weed): synergism or antagonism?

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Summary *Ageratina adenophora* (crofton weed) is an environmental weed in many countries due to its high reproductive capacity and ability to thrive in many environments. In Australia, crofton weed is a garden escapee that has become invasive along the eastern coast. This prompted the search for and successful release, in 2014, of the fungal biological control agent *Baeodromus eupatorii* (crofton weed rust) to aid in the management of crofton weed. An additional fungal pathogen of crofton weed, *Passalora ageratinae*, was accidentally introduced in Australia in the 1950s. This fungus causes leaf lesions leading to defoliation of the weed. It has been suggested that these two pathogens in combination can reduce the growth of crofton weed but this has never been empirically tested. The aim of this study was to investigate the pathogenicity of these two fungal species on

crofton weed and determine if there is evidence of an interaction between these two pathogens on the weed. A manipulative experiment was undertaken where crofton weed plants were exposed to treatments of either pathogen alone and the two pathogens in combination. Results from these experiments indicate that *B. eupatorii* alone is most effective at reducing the overall biomass of crofton weed while *P. ageratinae* alone is less effective than the two pathogens in combination at reducing the overall biomass. Interestingly, in the treatment with both fungal pathogens it appears that *P. ageratinae* may delay the symptom development of *B. eupatorii* suggesting a possible antagonistic effect of *P. ageratinae* on *B. eupatorii*.

Keywords Crofton weed, *Passalora ageratinae*, *Baeodromus eupatorii*, agent interactions.