Assessing the risk of a potential biological control agent of *Ambrosia artemisiifolia* to non-target species.

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In the quest of controlling the highly allergenic common ragweed, *Ambrosia artemisiifolia*, the accidental introduction of the leaf beetle *Ophraella communa* in Europe in 2013 could represent a potential successful scenario for biological control. Three field studies were conducted during May-November 2015 in Italy and Switzerland, where *O. communa* is presently well established. Firstly, an open field choice experiment was set-up in four localities, consisting of a latin-square design with 7 plant accessions (common ragweed, *Guizotia abyssinica*, sunflower Iregui, sunflower Sunrich and 3 phenostages of sunflower Girasole PR64H42). The experiment was repeated three times (cohort 1: May-July; cohort 2: July-September; cohort 3: September-November) at each locality, corresponding to the growing season of early (Girasole), mid (Sunrich) and late (Iregui) varieties of sunflower. Plants were monitored 6 times per cohort, assessing the number of egg-batches, larvae, pupae, adults and percentage of damage. The results show a high preference of *O. communa* towards common ragweed for oviposition (92.4), also for the distribution of all larval instars (85%), pupae (96%), and adults (16 per plant). Damage caused by *O. communa* was higher on common ragweed (28-100%), but was also found on all plant accessions in different percentages (0-50%). A second non-choice performance experiment was conducted in Corbetta, Italy, during 6 weeks, where 72 newly hatched larvae were transferred to each 18 common ragweed and sunflower var. Girasole plants inside 2×2×1 m cages. Two larvae per plant were enclosed in clip-on cages. Larvae were reared from each one egg-batches of 12 females from different localities. Survival of larvae and pupae was significantly higher on common ragweed (χ^2=5.668; P=0.017), but there was no significant difference in developmental time of surviving larvae between ragweed and sunflower (χ^2=0.067; P=0.795). Interestingly, we found a significant interaction between insect families and host plant (χ^2=24.258, P=0.012) suggesting genetic variation in host preference. Finally, 15 plant species closely related to common ragweed were monitored in a non-target field survey, including both native and non-native species in 28 localities with occurrence of both common ragweed and *O. communa*. The number of egg-batches, larvae, pupae, adults and percentage of damage was registered, as well as population size, density, abundance and phenology of the non-targets. We found that *O. communa* can complete its life-cycle on three non-native plant species in the same tribe as common ragweed and cause punctual feeding damage on sunflower and three native plant species in the Asteraceae family. In summary, punctual damage found on native species and in early and mid-varieties of sunflower (Girasole and Sunrich) is unlikely to have major repercussions. The well documented benefits that the potential biocontrol agent *O. communa* may bring widely surpasses the punctual risks found in the field, suggesting that *O.communa* is a suitable control agent for *A. artemisiifolia* in Europe.

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