
Belowground competition induced by a wind-pollinated species influences attractiveness of an insect-pollinated plant, *S. alba*, to wild pollinators.

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Abstract

Plant traits related to attractiveness to pollinators (e.g. flowers, nectar) can be sensitive to abiotic or biotic conditions such as soil nutrient availability or interactions between plant species. Especially, competitive interactions induced by the presence of wind-pollinated species, which are almost never taken into account in plant-pollinator networks, can have a negative influence on both flower and nectar traits. However, the impact of such competitive interactions between plants on wild pollinators has never been investigated to our knowledge. We set up a field experiment in which we confronted an insect-pollinated species, *Sinapis alba*, to belowground competition with a wind-pollinated plant, *Holcus lanatus*. Flower and nectar production of *S. alba* were measured as well as pollinator visits. Fruits and seeds were also studied to assess the fecundity of *S. alba*. Belowground competition induced by *H. lanatus* had a negative effect on daily floral display size, daily and total flower production. However, daily nectar traits were not affected. The time to first visit as well as the total number of pollinator visits received at the plot level and at the plant level were negatively influenced by belowground competition, with a correlation to floral traits. Moreover, the fecundity ratio (fertilized ovules / total ovules) of *S. alba* decreased in presence

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of belowground competition. This study 1) demonstrates that pollination networks may be modulated by competitive interactions between plants, even with non insect-pollinated species and 2) stresses the importance of studying the whole plant community when working on plant-pollinator interactions.

Keywords: plant communities, competition, attractiveness to pollinators, pollination