



“Gheorghe Asachi” Technical University of Iasi, Romania



REPRODUCTIBILITY OF FLOWER SCENT EMISSIONS IN TWO WILD SUBSPECIES OF SNAPDRAGON, *Antirrhinum majus*

Claire Suchet^{1,2,3}, Valérie Simon^{2,3}, Christine Raynaud^{2,3}, Jérôme Chave^{1*}

¹Laboratoire Evolution et Diversité Biologique UMR 5174, Université Paul Sabatier/CNRS F-31062 Toulouse, France

²Université de Toulouse, INPT, Laboratoire de Chimie Agro-industrielle, ENSIACET, 4 Allée Emile Monso, F-31030 Toulouse, France

³INRA, Laboratoire de Chimie Agro-industrielle, F-31030 Toulouse, France

Abstract

The reproducibility of flower scent is critical for a pollinator to learn that a reward is available. We studied the inter-population variation in floral volatile organic compounds (VOCs) emitted by the flowers of *Antirrhinum majus*, to test whether flower scent varies significantly across populations. We selected six natural populations of *A. majus*, three from the magenta-flowering subspecies, *A. m. pseudomajus*, and three from the yellow-flowering subspecies, *A. m. striatum*. A seed stock collected in the same six populations was also grown in a greenhouse to control for possible environmental variability. Floral VOC emissions of both the wild and greenhouse-grown plants were sampled using the dynamic headspace sampling technique. VOCs were identified and quantified using a GC-MS-FID. The variability in the flower scent of *A. majus* was mostly explained by systematic differences between the subspecies, both in the wild-grown and in the greenhouse-grown plants. The qualitative and quantitative differences in flower scent between the two subspecies were reproducible among the populations. The floral emissions were more variable in the wild plants than in the greenhouse-grown plants, but we failed to explain this variability by available micrometeorological variables. We conclude that the flower scent is reproducible within each *A. majus* subspecies, and that this signal may be used as a cue by pollinators for detection and recognition of flowers.

Key words: *Antirrhinum majus*, environmental variability, genetic determinism, VOC, wild snapdragon

Received: December, 2011; Revised final: May, 2012; Accepted: June, 2012

* Author to whom all correspondence should be addressed: e-mail: jerome.chave@univ-tlse3.fr; Phone: +33(0) 561556760; Fax: +33(0) 561557327