
The Life Cycle of a Semiochemical

Russell Barrow*^{†1}, Ruby Dixon¹, Rod Peakall², Björn Bohman³, Gavin Flematti³, and Eran Pichersky⁴

¹Research School of Chemistry, Australian National University – Australia

²Research School of Biology, Australian National University – Australia

³School of Chemistry and Biochemistry, University of Western Australia – Australia

⁴Department of Molecular, Cellular and Developmental Biology, University of Michigan – United States

Abstract

Semiochemicals are the vocabulary of communication for the majority of organisms on our planet. Despite this we know very little about these chemical languages and their roles in ecology. While the concept of a fragrance that stimulates sexual behaviour is the perfumer's dream, for many animals it is a reality.

Our work has focussed on understanding the chemical ecology associated with strategies employed by Australian orchids of the genera *Chiloglottis*, *Caladenia* and *Drakaea* to lure wasps as specific pollinators by sex pheromone mimicry. Known as Pouyannian mimicry, the orchids emit a chemical, or chemicals, that mimic the volatiles released by female wasps in order to attract a mate. In efforts to copulate with the orchid the male wasp transfers pollen between flowers leading to pollination.[1]

This paper will discuss progress in our studies of these intriguing chemical systems by following the life cycle of a semiochemical from its birth to its ultimate demise.

Bohman B., Flematti G.R., Barrow R.A., Pichersky E., Peakall R. *Curr. Opin. Plant Biol.*, **2016**, *32*, 37-46.

Keywords: semiochemistry, pheromone, allomone, ecology, orchid, pollination

*Speaker

[†]Corresponding author: rab@anu.edu.au