Breeding orchid species creates a new perfume

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A male bee attempts to copulate with an orchid. Credit: Vereecken et al., *BMC Evolutionary Biology*

Some orchids mimic the scent of a female insect in order to attract males for pollination. Researchers writing in the open access journal *BMC Evolutionary Biology* found that breeding two of these orchid species to generate a novel hybrid resulted in a new scent. This new odour had no effect on normal solitary bees from the area but was highly attractive to another species of wild bee that never visited any of the parent orchid species.

Nicolas J Vereecken from the Université Libre de Bruxelles worked with a team of researchers based in Switzerland (Zürich) and Italy (Naples) to carry out the study in the terrestrial orchid species Ophrys arachnitiformis and O. lupercalis growing in southern France. The

offspring of this pairing were sterile, but their floral odor was shown to be both novel and attractive to solitary bees unfamiliar with the parent plants' scent.

According to Vereecken, "Our study provides a unique window into the stepwise process by which apparent reproductive barriers can be broken down and how new combinations of floral traits can be generated, leading to the evolution of novel, highly specific plant-pollinator interactions".

In a video accompanying the paper a male solitary bee can be seen attempting copulation with one of the plants, lured in by its deceptive scent. Speaking about this unusual behaviour, Vereecken said, " The fact that some plants reproduce by advertising a false promise of sex to patrolling male bees is an extraordinary strategy. These orchids rely almost exclusively on their floral fragrance to attract pollinators on a highly specific basis, and this pollination mechanism is so far only known from the orchid family".

More information: Hybrid floral novelty drives pollinator shift in sexually deceptive orchids, Nicolas J Vereecken email, Salvatore Cozzolino email and Florian P Schiestl email, BMC Evolutionary Biology 2010, 10:103, doi:10.1186/1471-2148-10-103

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