

Honeybees not fooled by cheating flowers

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(PhysOrg.com) -- Flowers that want to cheat pollinators by not paying them for their services shouldn't try to lure them in using floral scents, scientists at Newcastle University have shown.

Pollinators such as the honeybee are important to [plants](#) because they help to ensure that cross-fertilisation takes place, which is essential for plant sexual reproduction.

But producing nectar for pollinators is a costly business. Instead, some plants try to cheat a pollinator - enticing it to visit and then failing to pay for its services - and getting sexual reproduction for free.

New research, published today in the academic journal [Proceedings of the Royal Society B](#), shows if a honeybee is faced with two similar

smelling plants it quickly learns which scent is associated with the 'sweetest' nectar and makes a beeline for it.

Led by Newcastle University's Dr Jeri Wright, the study suggests that a bee's ability to associate floral scent with the best nectar may be the key to understanding how floral scent has evolved in flowering plants.

Biologist Dr Wright explains: "Our research shows that because bees can learn about the signals associated with nectar quality they have the means of avoiding floral 'cheaters', preferring instead to visit the floral scents they've learned to associate with profitable rewards.

"This ability to learn forces [flowering plants](#) to be honest about the rewards they advertise and may even select for plants both with scented flowers and with high quality nectar because these plants out-compete others in a floral marketplace."

Plants advertise food rewards using colour, shape and scent as signals for enticing pollinators to visit them.

Nectar production uses vital energy and nutrients and some plants have learnt to falsely advertise the nectar they have on offer, enticing the pollinators to visit and then offering no payment - or poor payment - in return.

This latest research shows that floral signals associated with the best quality nectar cause [pollinators](#) to become biased towards these signals and steer away from flowers with poor quality nectar or no nectar at all.

Dr Wright said the research suggests that a bee's 'sweet-tooth' is likely to be affecting the floral signals that plants use to advertise nectar.

"This is extremely important to the plants because it affects whether or

not bees visit them and, therefore, whether or not plants sexually reproduce,” she explains.

More information: Reward quality influences the development of learned olfactory biases in honeybees Geraldine A. Wright*, Amir F. Choudhary, and Michael A. Bentley. Published in: *Proceedings of the Royal Society B*.

Provided by Newcastle University

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