

Bumblebees learn the sweet smell of foraging success

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Bumblebees use flower scent to guide their nest-mates to good food sources, according to scientists from Queen Mary, University of London.

For any animal, finding food on its own can be time consuming and inefficient; social animals such as bees reduce these problems by informing their peers of plentiful sites, and 'recruiting' them to the search.

Honeybees use their waggle-dance to tell nest-mates the distance and direction of a food source. But bumblebees can't communicate geographical information in this way; instead, they release a recruitment pheromone in the nest to encourage their colleagues to venture out in

search of food. But where should they look?

Mathieu Molet, Lars Chittka and Nigel Raine from the School of Biological and Chemical Sciences wanted to discover if this recruitment pheromone helped bees to learn which specific flowers were most rewarding at that time. They exposed bumblebee colonies to an anise scent mixed with recruitment pheromone and monitored their foraging patterns.

Bees learned that anise-scented flowers were the most rewarding. They learned this best when the flower smell was brought back to the nest by another 'demonstrator' bee, but they could also learn it when the anise odour entered the nest as either scented nectar or simply scent in the air.

Dr Raine explains: "Successful bees motivate their sisters to find food by running excitedly around the nest, buzzing and releasing pheromone. They bring home the scent of the flowers they visited which fills the air and flavours the honey. The other bees leave the nest and search for nectar-rich flowers with the same smell."

The presence of recruitment pheromone did not affect how well bees learned a new flower scent. However, the pheromone increases foraging activity in bumblebee colonies, which could increase the effectiveness of these bees pollinating important commercial crops such as tomatoes.

Source: Queen Mary, University of London

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