Male bees have more than a one-track mind

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Male bumblebees -- once thought to be good for just sex -- are actually just as smart as female worker bees. Credit: Queen Mary University of London (QMUL)

Male bumblebees are just as smart as female worker bees despite their dim-witted reputation, according to new research from Queen Mary University of London (QMUL).

Researchers from QMUL's School of Biological and Chemical Sciences trained male and female bumblebees to distinguish between artificial

flowers that contained food and another that did not.

The new study published today (Friday 13 Nov.) in the journal *Animal Behaviour* found male bumblebees equal the female or worker bee's excellence in learning which flowers reward with food.

Roles within a bee colony are tightly regulated with the sterile female (also known as worker) bees performing all the labour such as, cleaning the hive, defending the colony, collecting and storing food, and feeding the young. Male bumblebees are believed to have few aptitudes beyond mating and thought to be not just lazy but simple. In comparison, for example, worker bees are well known to learn the location of their hive, the colours and scents of rewarding flowers.

Dr Stephan Wolf, lead author of the research, said: "Despite fundamental differences in the daily habits between male and female bees, this work illustrates that male bees can be clever shoppers in the flower supermarket even when their main interest is in mating."

The study tested the bees' ability to associate the flower colour with the reward of food. Flower colours where changed after some time, and bees had to forget the previously learned cue and learn a new colour as indicator for nectar or food. Over four sequential colour changes, the researchers demonstrated that male and worker bees are equally good at learning floral colours to guide them to those flower types that provide them with nectar even when the colours of the rewarding flowers will change over time.

Professor Lars Chittka, co-author of the study, suggests that: "Since bumblebee males can't sting, they are a useful model to study insect learning behaviour without the constant risk of painful encounters."

More information: 'Male bumblebees (Bombus terrestris) perform equally well as workers in a serial colour learning task' by Stephan Wolf and Lars Chittka is published in the journal *Animal Behaviour*.

Provided by Queen Mary, University of London

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