

Bumble Bees (*Bombus terrestris*) use mechanosensory hairs to detect electric fields

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Abstract

Bees and flowers have an intricate relationship which benefits both organisms. Plants provide nectar bees, in turn, distribute pollen to fertilize plants. To make pollination work, flowers need a mechanism to incentivize individual bees to visit only a single species of flower. Flowers, like modern advertising agencies, use multiple senses to create a floral ‘brand’ that is easily recognized. Size, smell, colour, touch, and even temperature are used to allow bees to differentiate between flower species. Recently, a new sense has been found that is usable by bees to differentiate flowers, an ‘electric sense’: they can identify flowers based only on the flower’s electric field. This new sense provides a novel example of how flowers differentiate themselves to bees and has obvious implications for how bees and flowers interact with the electrical world around us. Bumble bees detect this electric field by using their body hairs, which bend in the presence of electric charge.

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