

Iridescence invisible to human eye enables bees to view flowers in different colours

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(PhysOrg.com) -- Bees see some flowers in multicolour because of previously unknown iridescence of the petals, usually invisible to the human eye, researchers from the University of Cambridge report this week in *Science*.

Iridescence is used by insects, birds, fish, and reptiles for species recognition and mate selection. However, this is the first time that it has been shown that plants use iridescence to attract pollinators. Bees see an iridescent flower in different colours depending on the angle from which it is viewed.

The research, led by Beverley Glover from the University of Cambridge, shows that flowers use the same physical structure that makes compact discs iridescent. Flowers were previously believed only to use chemical colours, where a pigment absorbs all wavelengths except a few, giving them their apparent colour.

Iridescence, where a surface appears in different colours depending on the angle from which it is viewed, can only be generated structurally (not through chemical colours).

Because most of the petal iridescence measured is at the ultraviolet end of the spectrum, which insects can see but humans cannot, this raises the intriguing possibility that many flowers are actually iridescent although they do not appear so to the human eye.

Dr Glover said: "Our initial survey of plants suggests that iridescence may be very widespread. From gardening to agriculture, flowers and their pollinators play an enormously important role in our daily lives, and it is intriguing to realise that they are signalling to each other with flashing multicolours that we simply can't see."

The research was funded by the Natural Environment Research Council, the Engineering and Physical Sciences Research Council, as well as from the Cambridge University Research Exchange fund (which aims to promote biology and physics collaborations).

The article 'Floral Iridescence, Produced by Diffractive Optics, Acts As a Cue for Animal Pollinators' is published in the 2 January 2009 edition of *Science*.

Provided by University of Cambridge

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