Female jumping spiders find ultraviolet B rays 'sexy'

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A report publishing online on May 1st in the journal *Current Biology* provides the first evidence of an animal using ultraviolet B (UVB) rays to communicate with other members of its species.

In a series of mate choice experiments with the Chinese jumping spider (Phintella vittata), the researchers found that female spiders would rather mate with males that reflect UVB than those that do not.

“It has long been recognized that solar UVB has direct deleterious effects on a wide range of living organisms; for example, it can cause skin cancer and damage the retinal tissues of the eyes of mammals,” said Daiqin Li of National University of Singapore, who is also an Adjunct Professor in Hubei University, China. “Thus, it has generally been assumed that animals are unable to sense the presumably deleterious UVB wavelengths.”

Many arthropods and vertebrates were known to have body parts that reflect in UV and photopigments that are sensitive to UV, the researchers said, but previous studies have considered primarily the UVA spectral region. Indeed, UVA vision is known to function in animal communication, particularly in the assessment of potential mates.

Now, the researchers find the same can go for UVB.

Male spiders held the attention of females more successfully when they weren’t behind a filter that blocked UVB, they found. Females also more

often “chose” males that reflected UVB. They confirmed that the difference in the mating behavior was not influenced by the overall brightness or by UVA.

Jumping spiders are known to have uniquely complex eyes and acute eyesight, as well as UVA-sensitive photoreceptors in their principal eyes, the researchers said. However, it remains unclear how their eyes detect UVB. Indeed, scientists had conventionally thought that the absorbance of proteins within the UVB range would preclude UVB vision, they noted.

Li said he suspects the new findings are just the beginning. The earlier held assumptions about UVB “may have delayed and discouraged research into the adaptive significance of both UVB vision and UVB-reflective markings in animal communication. Our study is just the first to explore this possibility.”

Source: Cell Press

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