



Unlocking Spiders' Sense of Smell: New Study Reveals Answers

Description

Spiders have lived near people for a long time. We didn't know much about how they smell, but new research has found the answer. Male spiders have olfactory hairs on their legs to detect female spider pheromones.

In a study in a science journal, we discovered these special hairs and mapped them. This helps us learn more about how spiders smell things.

Even though spiders are known for their vibration sense and vision, we knew little about their sense of smell. Our study solved two big questions about how spiders detect odors without antennae.

We found wall-pore sensilla on male spiders' legs that help them smell pheromones. Adult male spiders use these sensilla to find mates. They are sensitive to even tiny amounts of pheromones.

Studies on other spider species show that these sensilla are common in males. This research opens the door to learning more about how spiders use their sense of smell.

By Dan-Dan Zhang, Researcher of Sensory Biology, Lund University

This article was originally published on The Conversation website.

Vocabulary List:

1. **Olfactory** /ɒl'fæk.tər.i/ (adjective): Relating to the sense of smell.
2. **Pheromones** /,fer.ə'moʊn/ (noun): Chemical substances produced and released into the environment by an animal affecting the behavior or physiology of others of the same species.
3. **Sensilla** /sen'si.lə/ (noun): Small sensory structures on an animal or insect.
4. **Vibration** /vaɪ'breɪ.ʃən/ (noun): A rapid linear motion back and forth or up and down.
5. **Species** /'spiː.ʃiːz/ (noun): A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
6. **Detect** /dɪ'tekt/ (verb): To discover or identify the presence or existence of something.

Comprehension Questions



Multiple Choice

1. What do male spiders have on their legs to detect female spider pheromones?
Option: Antennae
Option: Olfactory hairs
Option: Vision sensors
Option: Vibration sensors
2. What did a study in a science journal help researchers discover about spiders?
Option: Their vision abilities
Option: Their hunting techniques
Option: Their sense of smell
Option: Their web-building skills
3. What do male spiders use to find mates?
Option: Vibration sense
Option: Antennae
Option: Wall-pore sensilla
Option: Olfactory hairs
4. Which of the following is true about the sensilla found on male spiders' legs?
Option: Sensitive to sound
Option: Sensitive to touch
Option: Sensitive to pheromones
Option: Sensitive to temperature
5. What does the research mentioned in the text open the door to learning more about?
Option: How spiders build webs
Option: How spiders manage vibrations
Option: How spiders use their sense of smell
Option: How spiders hunt prey
6. Who is mentioned as the author of the article?
Option: Dan-Dan Zhang
Option: John Smith
Option: Mary Johnson
Option: Sarah Lee



True-False

- 7. Male spiders have antennae to detect female spider pheromones.
- 8. The study discussed in the text focused on spiders' sense of touch.
- 9. Spider sensilla are common in both males and females.
- 10. Spiders are primarily known for their sense of smell.
- 11. The article was originally published on National Geographic website.
- 12. Male spiders use their sense of smell to find mates.

Gap-Fill

- 13. Male spiders have _____ on their legs to detect female spider pheromones.
- 14. Wall-pore sensilla on male spiders' legs help them smell _____.
- 15. The research on spider sensilla opens the door to learning more about how spiders use their sense of _____.
- 16. Male spiders are sensitive to even tiny amounts of _____.
- 17. Adult male spiders use wall-pore sensilla to find _____.
- 18. Studies on other spider species show that wall-pore sensilla are common in _____.

Answer

Multiple Choice: 1. Olfactory hairs 2. Their sense of smell 3. Wall-pore sensilla 4. Sensitive to pheromones
5. How spiders use their sense of smell 6. Dan-Dan Zhang

True-False: 7. False 8. False 9. False 10. False 11. False 12. True

Gap-Fill: 13. olfactory hairs 14. pheromones 15. smell 17. mates 18. males



Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. Which natural disasters are characterized by uncontrolled fires in wildlands?
Option: Hurricanes
Option: Earthquakes
Option: Wildfires
Option: Tornadoes
2. Which process describes the gradual development of organisms over generations?
Option: Revolutionary
Option: Evolutionary
Option: Reactionary
Option: Involuntary
3. Which mineral is essential for strong bones and teeth?
Option: Iron
Option: Calcium
Option: Potassium
Option: Magnesium
4. Which infectious bacterial disease is also known as rabbit fever or deer fly fever?
Option: Tuberculosis
Option: Malaria
Option: Tularemia
Option: Cholera
5. Which term refers to an organism that hunts and feeds on other organisms?
Option: Parasite
Option: Prey
Option: Predator
Option: Producer
6. Which sense is related to the sense of smell?
Option: Tactile
Option: Auditory
Option: Olfactory
Option: Visual
7. Which term describes the deliberate release of viruses bacteria or other germs to cause illness or death?



- Option: Bioculture
- Option: Biodefense
- Option: Biotechnology
- Option: Bioterrorism

8. Which term describes a rapid back-and-forth movement?

- Option: Rotation
- Option: Vibration
- Option: Expansion
- Option: Constriction

9. What kind of conditions result from a lack of essential nutrients in the body?

- Option: Excesses
- Option: Deficiencies
- Option: Sufficiencies
- Option: Abundances

10. What term is used to describe the sudden occurrence of a disease in a specific geographic area or population?

- Option: Epidemic
- Option: Outbreak
- Option: Pandemic
- Option: Endemic

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

- 11. _____ is essential for human survival and agricultural activities.
- 12. _____ remains provide valuable information about ancient life forms.
- 13. Regular screening can help detect early signs of _____ cancer.
- 14. _____ are chemical signals that trigger social responses in animals.
- 15. Photosynthesis is the _____ by which plants convert sunlight into energy.
- 16. Regular exercise and a balanced diet contribute to a healthy _____.
- 17. Measures of _____ indicate the frequency of a disease in a defined population.
- 18. Biodiversity plays a crucial role in maintaining healthy _____.



19. Long-term _____ to environmental toxins can have detrimental health effects.
20. The Amazon rainforest is home to an incredible diversity of plant and animal _____.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The chemical of the atmosphere is crucial for supporting life on Earth.
22. Insects have tiny sensory organs called on their antennae.
23. The period saw a rapid diversification of multicellular life forms.
24. High blood can increase the risk of cardiovascular diseases.
25. Scientists conducted extensive to understand the effects of climate change.
26. The lion stalked its silently through the tall grass.
27. Dogs are often used to illegal substances at airports.
28. The flu is caused by an virus that spreads easily from person to person.
29. Ethical dilemmas often involve questions of and right and wrong.
30. A single can quickly multiply and cause an infection.

Answer

Multiple Choice: 1. Wildfires 2. Evolutionary 3. Calcium 4. Tularemia 5. Predator 6. Olfactory 7. Bioterrorism 8. Vibration 9. Deficiencies 10. Outbreak

Gap-Fill: 11. Freshwater 12. Fossilized 13. Colorectal 14. Pheromones 15. Process 16. Lifestyle 17. Morbidity 18. Ecosystems 19. Exposure 20. Species

Matching sentence: 1. Composition 2. Sensilla 3. Cambrian 4. Pressure 5. Research 6. Prey 7. Detect 8. Infectious 9. Morality 10. Bacterium

CATEGORY

1. Health - LEVEL2

Date Created

2025/01/09

Author

aimeeyoung99