



Scientists Uncover Vast Underground Fungal Network

Description

Scientists have mapped a vast underground network of microscopic fungi that stretches approximately 110 quadrillion kilometres across Earth's topsoil. This distance is so significant it could theoretically reach the Sun nearly a billion times. The discovery highlights the crucial role these ancient fungal networks play in supporting life on Earth, including aiding plant growth, storing carbon, and maintaining ecosystem health.

The study was led by researchers from the Society for the Protection of Underground Networks (SPUN), who analysed over 16,000 soil samples. They created a detailed map of arbuscular mycorrhizal fungi, which form partnerships with plant roots. Although these fungi are invisible to the naked eye, they create one of the largest biological systems on the planet. The 110 quadrillion kilometres reflects the total length of many networks, not a single organism encircling the Earth.

These fungi form mutually beneficial relationships with around 70% of land plants. In this partnership, plants supply sugars to the fungi, while the fungi assist in absorbing water and essential nutrients like phosphorus. This relationship has existed for millions of years and has been vital for plants colonising land.

The study also reveals that fungal networks are declining in agricultural areas due to practices like deep tilling and excessive fertiliser use. Such changes can lead to crops becoming increasingly dependent on synthetic fertilisers, jeopardising their resilience.

Looking ahead, researchers believe that protecting and restoring these hidden fungal ecosystems is essential for improving food security and combating climate change. Conservation efforts should also focus on these crucial underground systems, which are often overlooked despite their importance.

Vocabulary List:

1. **fungi** //ˈfʌŋ.dʒaɪ// (noun): small living organisms like mushrooms and molds
2. **mycorrhizal** //,maɪ.kəˈraɪ.zəl// (adjective): describing fungi that live with plant roots
3. **ecosystem** //ˈi:kos,sɪstəm// (noun): all living and nonliving things in one place
4. **colonising** //ˈkɒlə,nəɪzɪŋ// (verb): starting to live and grow in a new place
5. **fertiliser** //ˈfɜːtə,ləɪzə// (noun): substance added to soil to help plants grow
6. **resilience** //rɪˈzɪliəns// (noun): ability to recover from problems or harm

Comprehension Questions



Multiple Choice

1. How far do the mapped underground fungal networks stretch?
Option: 110 quadrillion kilometres
Option: 50 billion kilometres
Option: 200 quadrillion kilometres
Option: 80 million kilometres
2. What percentage of land plants form partnerships with arbuscular mycorrhizal fungi?
Option: 50%
Option: 70%
Option: 80%
Option: 90%
3. Which organization led the study on underground fungal networks?
Option: Society for the Protection of Underground Networks
Option: Society of Mycology
Option: Earth Sciences Coalition
Option: Fungal Research Alliance
4. What is one of the primary roles of these fungal networks?
Option: Enhancing solar power
Option: Aiding plant growth
Option: Improving air quality
Option: Producing oxygen
5. What impact does deep tilling have on fungal networks?
Option: It enhances their growth
Option: It has no effect
Option: It leads to their decline
Option: It increases biodiversity
6. What essential nutrient do fungi assist plants in absorbing?
Option: Nitrogen
Option: Phosphorus
Option: Potassium
Option: Calcium



True-False

7. The distance of the fungal networks could reach the Sun nearly a billion times.
8. Fungal networks are visible to the naked eye.
9. The relationship between plants and fungi has existed for millions of years.
10. Excessive fertiliser use has a positive effect on fungal networks in agricultural areas.
11. Conservation efforts should focus solely on above-ground ecosystems.
12. Fungal networks are crucial for improving food security.

Gap-Fill

13. The underground fungi stretch approximately _____ quadrillion kilometres.
14. Around _____ % of land plants form partnerships with fungi.
15. The fungus helps to absorb water and _____ nutrients.
16. Fungal networks are declining due to practices like deep tilling and excessive _____.
17. These networks have been vital for plants _____ land.
18. Research indicates the need to protect and restore underground fungal _____ systems.

Answer

Multiple Choice: 1. 110 quadrillion kilometres 2. 70% 3. Society for the Protection of Underground Networks
4. Aiding plant growth 5. It leads to their decline 6. Phosphorus

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

Gap-Fill: 13. 110 14. 70 15. essential 16. fertiliser 17. colonising 18. ecosystem

CATEGORY

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