



Flora Fauna and 'Funga'

For Prelims: [United Nations Biodiversity](#), Flora and Fauna, [Funga](#), [Species Survival Commission \(SSC\)](#), [International Union for Conservation of Nature \(IUCN\)](#)

For Mains: Fungi and their Significance in Conservation

Source: [PIB](#)

Why in News?

Recently, [United Nations Biodiversity](#) has urged people globally to use the word '**funga**' whenever they say '**flora and fauna**', in order to **highlight** the **importance of** [fungi](#).

Why has the UN Biodiversity urged to use the word 'Funga'?

- According to **UN Biodiversity** "It is time for **fungi** to be recognised and protected on an equal footing with **animals** and plants in **legal conservation frameworks**."
- This is not the first time when a request has been made to include **fungi** along with **flora and fauna**.
 - Earlier, the [Species Survival Commission \(SSC\)](#) of the [IUCN](#) announced that it would use "**mycologically inclusive**" language in its internal and public-facing communications and to incorporate **fungi** in **conservation strategies** with **rare** and **endangered plants** and **animals**.
- There would be **no life on Earth** without **fungi**, the [yeasts](#), **molds** and [mushrooms](#) as they are critical to **decomposition and forest regeneration**, **mammalian digestion**, [carbon sequestration](#), **the global nutrient cycle** and [antibiotic medication](#).

What is Fungi?

- **About:**
 - **Fungi or fungus** are a diverse group of [eukaryotic microorganisms](#) or **macroscopic organisms** that belong to their own **biological kingdom**, distinct from **plants, animals**, and [bacteria](#).

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The Six Kingdoms of Life



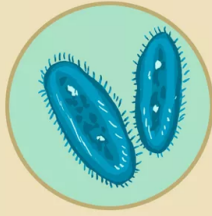
Animalia



Plantae



Fungi



Protista



Eubacteria



Archaeobacteria

▪ Characteristics:

- **Eukaryotic:** Like **plants, animals, and protists, fungi** have complex, **membrane-bound cell organelles and a true nucleus.**
- **Heterotrophic:** **Fungi** are primarily **decomposers** or **saprophytes**, meaning they obtain nutrients by **absorbing organic matter** from their **surroundings.**
- **Secrete Enzymes:** **Fungi** secrete enzymes to **break down complex organic compounds** into simpler substances, **which they can then absorb.**

▪ Benefits:

- **Nutrient Cycling**
 - **Fungi** can convert nutrients to make them accessible to **plants**, acting as **decomposers** by **breaking down organic matter**, thereby enhancing **nutrient cycling** and **soil fertility.**
- **Carbon Cycling and Climate regulation:**
 - **Fungi** play a vital role in **soil carbon storage** by participating in the **carbon cycle.** They decompose **organic matter, cycling carbon** from **dead plants**, and form **symbiotic relationships** with **plant roots.**
 - **Mycorrhizal fungi** form **symbiotic relationships** with **plant roots**, aiding in nutrient uptake.
- **Fungi as Food:**
 - It has **numerous beneficial applications.** **Yeasts**, for instance, are used in **baking** and **brewing.** **Fungi** also produce **antibiotics** like **penicillin.**
 - Some **fungi**, like **mushrooms and truffles**, are **edible** and **prized in cuisine.** Others, like **molds**, are used in **cheese production.**
- **Environmental Protection:**
 - **Fungi** have been found to help degrade **various pollutants** from the **environment**, such as **plastic** and other **petroleum-based products, pharmaceuticals and personal care products, and oil.**

▪ Harmful Effects of Fungi:

- **Human and Animal Diseases:**
 - **Fungi** can cause a variety of diseases in **humans and animals.** Examples include **athlete's foot (caused by dermatophytes), ringworm, histoplasmosis, and aspergillosis.**
 - Some fungi produce **toxic compounds known as mycotoxins, which can contaminate food** and lead to **health problems when consumed.**
- **Crop and Plant Diseases:**
 - **Fungal pathogens** can infect and damage **crops and plants**, leading to **significant economic losses** in agriculture.
 - Examples include **rusts, powdery mildews**, and various types of **fungal**

blights.

- **Allergic Reactions:**
 - Exposure to **fungal spores**, especially in **indoor environments** with **high humidity**, can **trigger allergies** and **respiratory problems** in some individuals.
 - Conditions like **allergic rhinitis** and **allergic bronchopulmonary aspergillosis** are associated with **fungal allergens**.
- **Biodegradation of Materials:**
 - **Fungi** can **break down** materials such as **textiles, leather, and paper**, which can be detrimental if these materials are not properly preserved or stored.

Way Forward

- **Promoting Fungal Conservation:** Advocate for the inclusion of fungi in **legal conservation frameworks** at national and international levels. This would involve recognizing and protecting **fungi-rich ecosystems** and habitats.
 - Allocate adequate **funding and grants** specifically for **fungal conservation projects** for **research, habitat protection, and restoration efforts**.
- **Research and Education:**
 - Invest in research to study fungal diversity, distribution, and ecological roles. This knowledge is **crucial for effective conservation efforts**.
 - Launch **awareness campaigns** and **educational programs** to inform the **public, policymakers**, and conservationists about fungi's vital contributions to **ecosystem health, nutrient cycling, and biodiversity**.
- **Mycological Inclusivity:** Encourage governmental agencies, research institutions, and conservation organisations to adopt "**mycologically inclusive**" language in their communications, policies, and reports.

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