

1. **Allographa Effusosoredica** : Recently, in a remarkable discovery that deepens our understanding of biodiversity and ancient symbiotic systems, scientists have identified a new species of lichen, **Allographa effusosoredica** from the ecologically rich Western Ghats.
 - **About Allographa Effusosoredica** : A crustose lichen marked by its effuse soredia and presence of **norstictic acid**, a rarely occurring secondary metabolite.
 - Both morphological and molecular analyses (fungal component and algal symbiont) confirmed its novelty.
 - It is phylogenetically close to **Allographa xanthospora** but shows strong morphological resemblance to **Graphis glaucescens**, suggesting **evolutionary convergence**.
 - This is the **first Indian species** of **Allographa** validated through **molecular sequencing**, showcasing the power of integrative taxonomy.
 - **About Lichens**: Are **composite organisms** formed by a partnership between fungi and photosynthetic organisms (green algae or cyanobacteria).
 - This symbiosis allows them to thrive in **extreme environments** and contribute to **soil formation, nutrient cycling, and air quality monitoring**.
 - The newly discovered species harbours a **rare algal photobiont** from the genus **Trentepohlia**, rarely seen in tropical lichens.
 - **Conservation and Climate Relevance**: Lichens are **sensitive bioindicators** of environmental change, reacting to air pollution and climate shifts.
 - The discovery underscores the **biodiversity significance of the Western Ghats**, a region under threat from **deforestation, urbanisation, and climate stress**.
 - It calls for enhanced **molecular and ecological research** into unexplored microbial and fungal life—many of which may unlock insights into **climate adaptation, ecosystem resilience, or biomedical applications**.
2. **Cnemaspis Brahmaputra** : Recently, in a remarkable zoological discovery, researchers identified a new species of **gecko—Cnemaspis brahmaputra**—from the riverbanks of Assam, India.
 - The species was discovered near the Dirgheswari Temple, located on the northern bank of the Brahmaputra River.



- **About Cnemaspis Brahmaputra** : Belongs to the **Cnemaspis podihuna** clade, a group of small, diurnal geckos previously thought to be mostly restricted to **Sri Lanka**.
 - Its presence in Assam points to an **ancient biogeographic link** between Sri Lanka and Northeast India, highlighting historical **faunal exchange** across the subcontinent.
 - **Distinctive Evolutionary Traits**: The species is **genetically and morphologically distinct** from its Sri Lankan relatives, indicating **significant evolutionary divergence**.
 - ✓ Strengthens the understanding of **regional endemism** and evolutionary history in the Brahmaputra valley.
 - **Unique Features** : **Larger body size** compared to related species.
 - ✓ **Fewer mid-body scale rows** but **more ventral scale rows** across the belly.
 - ✓ **No tubercles** on the lower flanks.
 - ✓ Presence of **three enlarged rows of thigh scales**, aligned parallel to the enlarged femoral scale row.
- **Ecological Significance** : This is only the **second known species of the genus Cnemaspis** from Northeast India.
 - The **first species**, *Cnemaspis assamensis*, was described in **2000**.
 - Both species are part of the **podihuna clade** and are **restricted to the Brahmaputra River valley**.
 - Interestingly, the two species occur on **opposite banks of the river** and show **significant genetic differences**, emphasizing localized speciation.
- 3. **Coronal Mass Ejections (CMEs)** : Recently, scientists at the Indian Institute of Astrophysics traced the rare auroras over Ladakh in May 2024 to a unique sequence of six interacting **Coronal Mass Ejections (CMEs)**.
 - Together, these CMEs caused one of the most intense geomagnetic storms in the past two decades.
- **About CMEs** : Are massive ejections of **magnetized plasma** from the Sun's outer atmosphere, the **corona**.
 - They are caused by **magnetic reconnection**—the realignment of tangled magnetic field lines on the Sun.

- When magnetic field lines snap and reconnect, they release energy that can propel CMEs into space.
- CMEs often originate near **sunspot groups** and may occur alongside **solar flares**, although not always.
- Their speeds range from **below 250 km/s to over 3000 km/s**; the fastest Earth-directed CMEs can reach Earth in **15–18 hours**.
- CMEs expand as they travel, with large ones filling up to a **quarter of the Sun–Earth distance**.
- They are most frequent during the **solar maximum**, the peak of the Sun's 11-year activity cycle.
- **Impact on Earth: Disrupt satellite operations.**
 - Interfere with **communication and GPS systems**.
 - Damage **power grids** and critical infrastructure.
 - They also produce **auroras** when charged particles interact with Earth's magnetic field.
- 4. **Chronic Venous Insufficiency (CVI)** : Recently, the White House officially confirmed that President Donald Trump has been diagnosed with **Chronic Venous Insufficiency (CVI)** following symptoms of swelling in his lower legs and bruising on his hand.
- **About CVI** : A **vascular condition** where veins in the legs fail to return blood efficiently to the heart.
 - It occurs due to **damaged or weakened vein valves**, leading to **venous reflux**—a backward flow of blood. This causes **blood pooling** in the lower legs and feet.
 - **Common Symptoms: Swelling**, especially around the ankles and feet
 - ✓ **Aching, heaviness, or tingling** in the legs
 - ✓ **Varicose veins** – enlarged and twisted veins
 - ✓ **Leg cramps, skin changes**, and in severe cases, **leg ulcers**
- **Is CVI Serious**: In early stages, CVI is generally **mild** and manageable. If left untreated, it may lead to complications like: **Deep Vein Thrombosis (DVT)** – blood clots in deeper veins
 - ✓ **Pulmonary Embolism** – clots that travel to the lungs
 - ✓ Long-term progression can significantly affect **mobility and quality of life**.

- **Treatment** : Lifestyle changes such as regular exercise, leg elevation, and weight management, followed by compression therapy using tight stockings or bandages, medications to improve blood flow, and, in advanced cases, surgical intervention.
- 5. **Urban Aerosol Clean Islands** : Recently, a 17-year satellite-based study (2003–2020) of 141 Indian cities found that several cities in the north and northwest Indo-Gangetic Plain have **lower aerosol levels than nearby rural areas**. Researchers from IIT Bhubaneswar have dubbed these cities "Urban Aerosol Clean Islands".
 - **Key Highlights** : 57% of cities (mainly in **south & southeast India**) had **higher aerosol levels** than nearby rural areas, termed **Urban Aerosol Pollution Islands**.
 - 43% of cities (mainly in **north & northwest Indo-Gangetic Plain**) had **lower aerosol levels** than surrounding areas, termed **Urban Aerosol Clean Islands**.
 - **About Urban Aerosol Clean Islands** : Cities acted as **barriers** that resisted or **redirected incoming aerosols**.
 - Clean island effect was **most visible during pre-monsoon** due to dust transport; **disappears during monsoon** and **less prominent in winter**.
 - **Wind Stilling Effect**: Caused by **urban structures slowing surface winds**, creating **atmospheric stagnation zones**.
 - ✓ These act as **invisible barriers, blocking long-range dust and pollution**, especially from the **Thar Desert and biomass burning**.
 - **Global Context**: Similar clean island effects have been noted in **Shanghai, Atlanta, and some European cities**, though attributed to **suburban emissions**.
- 6. **'Trade Connect' ePlatform** : Recently, the Directorate General of Foreign Trade (DGFT) showcased its flagship **'Trade Connect' ePlatform** to promote the digital empowerment of Indian exporters, particularly MSMEs.
 - **About Trade Connect ePlatform** : A **one-stop digital trade facilitation hub** for Indian exporters.
 - **Key features** : Updated info on tariffs, trade events, certifications, and e-commerce opportunities.
 - ✓ Secure, **paperless issuance of preferential and non-preferential Certificates of Origin**.

- ✓ A robust network of **Indian Missions abroad**, **Export Promotion Councils**, and **Commodity Boards** to assist exporters.
- ✓ **Multilingual interactive training modules** to help MSMEs understand export procedures.

7. Hydrogen Peroxide (H_2O_2) : Recently, researchers at the S. N. Bose Centre for Basic Sciences (SNBCBS) achieved a major scientific breakthrough by developing a novel photocatalyst capable of converting sunlight and water directly into **hydrogen peroxide (H_2O_2)**. The new material, named **Mo-DHTA COF**—a dimolybdenum-based covalent organic framework.

- **About H_2O_2** : A non-toxic and environmentally safe chemical. Breaks down into only water and oxygen, making it ideal for sustainable and green chemical processes.
 - Used in disinfection, water treatment, medical sterilization, & as an oxidizer in fuel cells.
- **About Mo-DHTA COF**: A novel metal-organic photocatalyst developed by embedding dimolybdenum paddlewheel units into a covalent organic framework (COF).
 - It has been engineered for efficient and eco-friendly hydrogen peroxide production using sunlight and water.
 - High surface area and porosity enable better exposure for photocatalytic reactions.
 - Narrow band gap allows strong absorption of visible light.
 - Stable structure supports repeated reuse without performance loss.

8. Crushed 2025 : Recently, a new report titled **Crushed 2025** by the Safe in India (SII) Foundation has raised alarming concerns about worker safety in India's rapidly growing automotive sector.

- **Key Findings** : **35%** year-on-year **increase in worker injuries** in 2024, with **1,200+ injuries** reported, up from **900+ in 2023**.
 - **78%** of cases occurred in **auto-component factories**, mostly on **illegally operated power presses**.
 - 70% of factories skip daily machine checks, inspecting only during breakdowns or audits.
 - **Women workers** remain at **higher risk**, with frequent denial of basic entitlements like **ESIC coverage**.
 - Most vulnerable segments of the workforce — **migrant workers, contractual labourers**, and **individuals** with limited education suffer a disproportionate burden of workplace injuries.