# UPSC Daily Current Affairs | Prelim Bits 29-07-2024

## Agarwood

*India has successfully prevented agarwood from being included in CITES's Review of Significant Trade (RST).*

- It is a tree species from the ***Thymelaeaceae family*** which is a dark, fragrant, resinous wood that comes from the heartwood of the Aquilaria tree.




- **Scientific name-** Aquilaria malaccensis
- **Habitat-** This species typically grows in ***tropical rainforests*** at elevations up to 1000 meters.
- **Distribution-** Aquilaria malaccensis is primarily found in Southeast Asia, including countries like India, Bangladesh, Bhutan, Indonesia, Malaysia, Myanmar, the Philippines, and Thailand.
- **Appearance-** The tree can grow up to 40 meters tall and has a diameter of up to 60 centimeters.
- Its leaves are oblong and leathery, and it produces small, fragrant flowers.
- **Applications-** It is renowned for producing a dark, fragrant resin known as agarwood or "oud," highly valued for its use in perfumes, incense, and traditional medicines.
- Agarwood is utilized in numerous applications such as in the aroma industry, in medicine preparations, preparations of air fresheners and purifiers.
- The essential oil extracted from agarwood has anti-inflammatory, anti-rheumatic, analgesic and antioxidant properties.
- **Conservation Status**
  - **IUCN - *Critically Endangered***.
  - Convention on International Trade in Endangered Species of Wild Fauna and

Flora **(CITES)** - ***Appendix II***.

| **CITES** |
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| • The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement to which States and regional economic integration organizations adhere voluntarily.<br>• **Establishment-** CITES was established in 1973 and came into force on July 1, 1975.<br>• **Purpose-** The main aim of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.<br>• **Membership-** As of now, CITES has 184 member countries, also known as Parties<br>• **Aim–** Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.<br>• It plays a critical role in the conservation of biodiversity by regulating international trade in wildlife, ensuring that such trade is legal, sustainable, and traceable.<br>• **Secretariat–** The CITES Secretariat is administered by UNEP and is in Geneva, Switzerland.<br>**Appendices**<br>• **Appendix I-** Includes species threatened with extinction. Trade in these species is only permitted in exceptional circumstances.<br>• **Appendix II-** Includes species not necessarily threatened with extinction but may become so unless trade is closely controlled.<br>• **Appendix III-** Includes species protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade. |

**Reference**


1. The Hindu | Agarwood
2. Cites | What is CITES


## National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN)

*In several Indian states, mothers of young children have education beyond Grade 10, making them valuable assets for NIPUN.*

- It is a national mission to ensure that all children in India have ***foundational literacy and numeracy skills*** by the end of grade 3 by 2026-27.
- It is one of the components of the NEP 2020.

*NEP 2020 aims to increase the Gross Enrolment Ratio in higher education including vocational education from 26.3% (2018) to 50% by 2035.*

- **Launched in-** 2021.
- **Nodal agency-** The Department of School Education & Literacy, Ministry of

Education.

- **Objectives**- Ensure all children can read with comprehension and have basic numeracy skills by the ***end of Grade 3.***
- NIPUN Bharat focuses on holistic development, goes beyond traditional classroom learning.
- It recognizes that students are multi-dimensional and addresses their cognitive, emotional, physical, and social growth.
- It focuses on different domains of development, such as physical and motor development, socio-emotional development, literacy and numeracy development, cognitive development, and life skills.
- These domains are interrelated and interdependent and will be reflected in a Holistic Progress Card.

## State-wise mother education data

- In Uttarakhand, Maharashtra, Punjab, and Haryana, 30-40% of mothers of young children have schooling beyond Grade 10.
- In Tamil Nadu, this figure is close to 43%.
- In Himachal Pradesh, it is over 54%.
- ***Kerala*** tops the list with nearly 72% of these mothers having high school education.

**References**

India Express | NIPUN

## Tinzaparin

*Recently, researchers discovered that tinzaparin significantly reduces damage to human cells caused by spitting cobra venom*.

- **Tinzaparin**- Tinzaparin is a prescription drug used to treat deep vein thrombosis (DVT) and pulmonary embolism (PE).
- It is a Low Molecular Weight Heparin (LMWH) and a drug commonly used to ***prevent blood clots***.
- Tinzaparin is a potent inhibitor of activated coagulation factors, especially Factors Xa and IIa (thrombin).
- It can also inhibit angiogenesis by binding to heparin-binding sites on endothelial cells, and by increasing the release of tissue factor pathway inhibitor (TFPI).
- It can also be used in conjunction with warfarin for the treatment of acute symptomatic Deep Venous Thrombosis (DVT) with or without PE.
- It significantly reduces damage to cells due to spitting cobra venom.
- It could protect these cells even when it was introduced an hour after the cells had been exposed to the venom.
- **Highlights of the recent study -** The researchers hypothesized that if the venom's toxicity depended on the biological pathway that synthesised ***heparan sulphate***, artificially stopping this pathway could ameliorate the venom's toxic effects.

- Tinzaparin could protect these cells even when it was introduced an hour after the cells had been exposed to the venom.
- Tinzaparin worked by blocking the interaction between the venom and its receptor in the cell by binding to venom molecules.

## Naja pallida



- It is also known as the ***red spitting cobra.***
- It is orange and red in colour.
- It is ***native to Tanzania***.
- It is formidable (Humans fear due to its great size).
- It has a 1.2-metre-long foe.
- When threatened, the cobra raises its hood, hisses, and if necessary, sprays venom from its mouth at the predator's face before lunging to bite and deliver more venom.
- The venom attacks cells in the body and damages the nervous system.

*Encounters with venomous snakes kill about* 1.4 lakh people every year*, especially in the tropical regions of Africa and Asia.*

**References**

1. The Hindu | Tinzaparin
2. WebMD | Tinzaparin (Porcine)

## Integrated Disease Surveillance Program (IDSP)

*The government recently released a report that 1,862 disease outbreaks were reported to the Integrated Disease Surveillance Programme, with Kerala reporting the highest number last year.*

- **IDSP**- The Integrated Disease Surveillance Programme (IDSP) is a decentralized, state-based program in India that aims to detect and respond to disease outbreaks early.
- It is now part of the ***National Health Mission.***
- **Launch**- It was launched in ***2004*** with assistance from the ***World Bank***.
- **Ministry -** Ministry of Health and Family Welfare.
- **Mandate**- It is mandated with surveillance and response to outbreak prone communicable diseases.
- **Functions**
    - **Early warning -** Detect early warning signs of disease outbreaks so that effective responses can be initiated quickly
    - **Data collection -** Provide data to monitor the progress of disease control programs and allocate health resources more effectively
    - **Information sharing -** Facilitate the sharing of relevant information with health administration, communities, and other stakeholders
    - **Disease trends -** Detect disease trends over time and evaluate control strategies
    - **Training -** Train health and social workers to help implement the program.
- **Surveillance units -** The IDSP has established
    - Central Surveillance Units (CSUs) in Delhi,
    - State Surveillance Units (SSUs) in state and union territory headquarters, and
    - District Surveillance Units (DSUs) in all districts.
- It has also established a referral lab network in 9 states that links medical college labs and other major centers with adjoining districts to provide diagnostic services for epidemic-prone diseases.
- Data Management - Under IDSP data is collected on epidemic-prone diseases on weekly basis (Monday–Sunday).
- The information is collected on 3 specified reporting formats, namely
    - “S” (suspected cases),
    - “P” (presumptive cases) and
    - “L” (laboratory confirmed cases).
- It is filled by Health Workers, Clinicians and Laboratory staff respectively.
- The weekly data gives information on the disease trends and seasonality of diseases.
- **IDSP Portal –** It is a one stop portal which has facilities for data entry, view reports, outbreak reporting, data analysis, training modules and resources related to disease surveillance.
- About 90% of Districts are now reporting disease surveillance data in the portal.

### References

1. Economic Times | Integrated Disease Surveillance Programme
2. IDSP | About us

## Polyatomic ion

*Recently, researchers have discovered a new method to utilize carbon dioxide (CO2) in ambient conditions, unlike the previously harsh thermal conditions.*

- **Conversion of Amines to N-Formamides Using CO2**- The transformation of amines to N-formamides is essential for synthesizing heterocycles, pharmaceuticals, and bio-active compounds.
- **Polyoxometalates (POMs)**- These are synthesized nanomaterials composed of three or more transition metals linked by shared oxygen atoms.
- These compounds are promising candidates for improving the photocatalytic conversion of CO2 due to their unique properties:
    - POMs provide high-efficiency catalytic sites that enhance reaction rates.
    - They exhibit extraordinary thermal stability, making them suitable for various reactions.
    - POMs have excellent redox abilities and properties like semiconductors, crucial for photocatalysis.
    - The light absorption properties of POMs can be finely tuned by incorporating different transition metals, enhancing their photocatalytic efficiency.
- **Recent Advancements** - They have explored 2 novel Keggin POM-based solids.
- Among these, PS-97 was found to be highly efficient for the photocatalytic N-formylation of various substituted anilines and morpholine with CO2 using phenyl silane as a reducing agent.
- Notably, this reaction operates under ambient conditions.

### Reference

PIB | Polyatomic ion

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