

NEWSPAPER HIGHLIGHT

The Competition Commission of India (CCI) on Friday froze its approval given in November 2019 to Amazon's investment in a Future Group unit on the grounds that the U.S. ecommerce company had suppressed the scope and full details of its investment while seeking regulatory approval. The antitrust regulator also imposed a penalty of ₹200 crore on Amazon for failing to notify the details of its 'combination', as required in law. It also imposed a separate penalty of ₹2 crore for suppressing the actual scope and purpose of the combination, a term used in competition law for acquisition, merger or amalgamation of two or more enterprises.

Environmentalists have expressed concern over amendments to the Biological Diversity Act, 2002 on the grounds that it prioritises intellectual property and commercial trade at the expense of the Act's key aim of conserving biological resources. The Bill seeks to exempt registered AYUSH medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity boards for accessing biological resources for certain purposes. A statement from the Legal Initiative for Forest and Environment (LIFE) said the Bill would "undo all the efforts made in the last few years to implement the Biological Diversity Act."

Bhutan conferred the Order of the Druk Gyalpo, its highest civilian honour, on Prime Minister Narendra Modi. This was announced on the occasion of the 114th national day of Bhutan.

The Tamil Nadu Government declared the Tamil Thai Vaazhthu, penned by 'Manonmaniam' Sundaranar, the State song of Tamil Nadu. Everyone except the differently abled and pregnant women should rise when the song is sung at educational institutions, government offices and public functions. The announcement came days after Justice G.R. Swaminathan of the Madurai Bench of the Madras High Court observed that Tamil Thai Vaazhthu was a prayer song and not an anthem, and there was no statutory or executive order requiring attendees to stand up when it was being sung.

CHAPERONES

1. Chaperone proteins or Molecular chaperones are group of proteins that is present in all organisms and are essential for cell survival. **One of the major functions of molecular chaperones is to facilitate protein folding i.e. amino acid folding.** Although the amino acid sequence of a protein contains the information required to adopt the native conformation, not all proteins can fold spontaneously. Here, chaperones help. Unfolded polypeptides are generated during normal growth as the product of protein synthesis. But misfolded proteins arise as a consequence of cellular stresses, such as heat shock, oxidative stress, as well as pathological conditions.

2. After the new protein chain has been shaped correctly, chaperones move on. Or else the new chain is eliminated. Without chaperones, newly synthesised proteins would soon become a tangled mess of insoluble aggregates, hindering cellular processes. Chaperones are needed under physiological conditions too, for normal cellular function.

3. Major chaperones in humans include HSP70, HSC70 and HSP90: the numbers express the size of the proteins in kilodaltons. HSC70 is always present at high levels in normal cells, whereas HSP70 is induced by heat. Heat shock proteins - Many molecular chaperones belong to the class of "heat shock" proteins (or stress-response proteins). In normal cells, 1%-2% of all proteins present are heat shock proteins. This number rises threefold during stressful conditions. This is because whenever an organism is subjected to elevated temperatures, proteins in the system begin to lose their native shapes, and chaperones are produced in large quantities to restore order.

4. **Molecular thermometer** - HSC70 appears to be more like a molecular thermometer, with an ability to sense cold temperatures. Disorders related to cold sensitivity (like Familial Cold Auto-inflammatory Syndrome) are caused by mutations in proteins that regulate inflammation. At normal body temperatures, HSC70 is able to coax these mutated proteins to fold correctly and thus function normally. In cold conditions, however, the HSC70 molecule is itself slightly altered in its shape and is not able to unerringly interact with the mutated regulators of inflammation. This leads to a pathological state with symptoms such as chills, joint pains and rich red skin rashes setting in within two hours.

5. **Anti-cancer agents** - Cancer cells divide at break-neck pace, and heat shock proteins are important in maintaining the stressful cancerous state. An overabundance of heat shock proteins in cancer cells is an indicator of a poor prognosis. Cancerous cells accumulate mutations in proteins that would normally suppress tumours.

6. **HSP70 and HSP90 play the roles of villains, as they continue to fold the mutated proteins, thus allowing tumour progression. In the laboratory, inhibitors of HSP90 have shown much promise as anti-cancer agents.** However, no inhibitor has yet been approved for human use, as the levels required for these to be effective are too toxic for your body.

PYRONEMA

1. A new study has found that the food source that allows Pyronema, a genus of pyrophilous fungi, to appear so quickly in big numbers after a fire is the damage left by the fire itself. Like trees, some fungi are adapted to fire. They are known as pyrophilous, or "fire-loving" fungi. After a fire, pyrophilous fungi show up from nowhere, basically, even in areas that haven't burned for decades.

2. Some sprout in fiery shades of orange and pink. It's a worldwide phenomenon. Charcoal is difficult for many organisms to break down, said Thea Whitman, an associate professor of soil ecology at the University of Wisconsin-Madison and Fischer's co-author. The new study found that Pyronema can decompose (eat) charcoal. This was found by feeding the Pyronema with pine seedlings in an atmosphere with carbon dioxide containing carbon-13. [Carbon-13 is an isotope whose unusual weight makes it easy to trace.]

3. Pyronema can eat charcoal, but it really doesn't like to. It may

With four sittings of winter session remaining the government has listed eight Bills for the next week, including The Prohibition of Child Marriage (A) Bill, 2021 that seeks to raise the legal age of marriage for women from 18 to 21 years and bringing it at par with men. While the Bill is likely to be introduced on Monday in Rajya Sabha, Minister of State (MoS) for Parliamentary Affairs Arjun Ram Meghwal, informed Lok Sabha that it is part of the House's agenda for the next week.

A total of 52 petitions relating to "habeas corpus matters" are pending in the Supreme Court as on December 13, Law Minister Kiren Rijiju informed the Lok Sabha. A habeas corpus is a writ used to challenge the unlawful detention or imprisonment of a person and protects fundamental rights.

A meeting of the Election Commission of India (ECI) with the Prime Minister's Office (PMO) last month that was reported caused the Opposition to cry foul and question the credibility of the poll body. Congress MP Manish Tewari moved an adjournment motion in the Lok Sabha on the matter. He wrote that the summoning of the ECI for a meeting with the principal secretary to the Prime Minister raised "serious questions of propriety and autonomy of the Election Commission".

France is ready to answer any additional needs or requests that could be made by India for additional Rafale fighter jets, including for its indigenous aircraft carrier, French Minister for Armed Forces Florence Parly said on Friday. On the Indo-Pacific, she observed that they wanted to preserve it as an open and inclusive area and free from any "coercion" and based on compliance with international law and multilateralism.

Two Indian Air Force (IAF) helicopters have crashlanded since August last and there were 15 accidents involving helicopters of the three Services in the last five years, the government said in a written reply in Parliament on Friday. Of the 15, there were three accidents involving the Mi-17V5, including the chopper that crashed last week in Tamil Nadu killing Chief of Defence Staff Gen. Bipin Rawat, his wife and 12 others.

The Enforcement Directorate (ED) has attached the assets of some National Socialist Council of Nagaland Issac Muivah (NSCNIM) members in a money laundering case. The action has been taken on the basis of a chargesheet filed

first enjoy that layer of dead organisms, and then switch to charcoal when it must. Significance - **As Pyronema is breaking down charcoal after a fire, it is capable of an important player in post-fire recovery of the ecosystem. Implications are reduced soil erosion and enhanced moisture retention.**

WHITE RHINOS

1. Thirty white rhinos were transferred from South Africa to Rwanda in a Boeing 747. White Rhinos are the second-largest land mammal. Also known as the square-lipped rhinoceros, white rhinos have a square upper lip with almost no hair. Two genetically different subspecies exist: the northern and southern white rhino, and are found in two different regions in Africa. White rhino populations decreased by 12% between 2012 and 2017.

2. **Southern white rhino is considered as "Almost Endangered (IUCN)" According to the World Wildlife Fund (WWF), there are currently 20,000 southern white rhinos in the world.** The majority (98.8%) of the southern white rhinos occur in just four countries: South Africa, Namibia, Zimbabwe, and Kenya. Northern white rhino is on the brink of extinction, with only 2 females remaining.

3. They live in the Ol Pejeta Conservancy in Kenya and are protected round-the-clock by armed guards. Their near extinction is due to decades of poaching for rhino horn. Social structures - White rhinos have complex social structures. Groups of sometimes 14 rhinos may form, notably females with calves. Adult males defend territories of roughly one square mile, which they mark with vigorously scraped dung piles.

4. The home range for adult females can be more than seven times larger, depending on habitat quality and population density. Breeding females are prevented from leaving a dominant male's territory, which is marked and patrolled by its owner on a regular basis. Males competing for a female may engage in serious conflict, using their horns and massive size to inflict wounds.

KAZHUVELI WETLANDS BIRD SANCTUARY

1. Ministry of Environment and Climate Change had declared the Kazhuveli wetlands as the 16th bird sanctuary in Tamil Nadu. Kazhuveli wetland is located near Villupuram in Tamil Nadu. It lies adjacent to the Bay of Bengal along the east coast. Kazhuveli wetlands is said to be the second largest brackish water lake in South India after Pulicat Lake.

2. **Kazhuveli brackish water lake wetlands are of adequate ecological, faunal, floral and geomorphological significance for the purpose of protecting, propagating and developing wildlife and its environment.**

3. It is a feeding ground for long-distance migrants from the cold subarctic regions of Central Asia and Siberia including Black-tailed Godwits, Eurasian Curlew, White Stork and Ruff. The Grey-tailed Tattler, a rare migratory wader, has been recorded only here and in Pulicat across the country. Kazhuveli falls in the Central Asian migratory path of birds.

ASSAMS MANOHARI GOLD TEA

1. Context: One kilogram of this special tea was sold for Rs 99,999. This was 33 percent higher than the price last year when it was sold for Rs 75,000 per kilogram. Benefits of this tea: Many types of antioxidants are found in this tea.

2. Apart from this, they contain bioactive compounds that help in controlling the effects of ageing and obesity.

3. **Why it is so expensive: The tea leaves are broken before the sun's rays fall between 4 and 6 in the morning. Its colour is light beige and the leaves are plucked along with the buds. Thereby giving different flavor to the tea.**

INDIA'S FIRST GREEN HYDROGEN MICRO-GRID PROJECT IN ANDHRA PRADESH

1. Context: NTPC has awarded a project of "Standalone Fuel-Cell based Micro-grid with hydrogen production using electrolyser in NTPC Guest House at Simhadri (near Visakhapatnam).

2. It would be a precursor to large-scale hydrogen energy storage projects and would be useful for studying and deploying multiple microgrids in various off-grid and strategic locations of the country.

3. The hydrogen would be produced using the advanced 240 kW Solid Oxide Electrolyser by taking input power from the nearby

against the accused persons by the National Investigation Agency under various provisions of the Unlawful Activities (Prevention) Act, Arms Act, and the Indian Penal Code.

Floating Solar project.