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Shaphari

- 'Shaphari' is a certification scheme for aquaculture products developed by the Marine Products Exports Development Authority (MPEDA).
- [Shaphari is a Sanksrit word that means superior quality of fishery products suitable for human consumption.]
- The Shaphari scheme, which is based on the United Nations' Food and Agriculture Organization's technical guidelines on aquaculture certification, will have two components,
    1. Certifying hatcheries for the quality of their seeds and,
    2. Approving shrimp farms that adopt the requisite good aquaculture practices.
- Those who successfully clear multiple audits of their operations shall be granted a certificate for a period of **two years**.
- The entire certification process will be **online** to minimise human errors and ensure higher credibility and transparency.
- It will bolster confidence in India's frozen shrimp produce, India's biggest seafood export item.

Shrimp Export

- Frozen shrimp is India's largest exported seafood item. It constituted 50.58% in quantity and 73.2% in terms of total U.S. dollar earnings from the sector during 2019-20.
- Major shrimp producing States - Andhra Pradesh, West Bengal, Odisha, Gujarat and Tamil Nadu. Around 95% of cultured shrimp is exported.
- **Factors that hurt export** - Container shortages and incidents of seafood consignments being rejected because of food safety concerns like the presence of antibiotic residue.

National Residue Control Programme

- National Residue Control Programme (NRCP), a statutory requirement for export to EU countries, is regulated and carried by MPEDA.
- This looks into food safety issues in farm produce and the pre-harvest testing system in place.
- Under NRCP, definite sampling schedule and sampling strategies are drawn

every year for monitoring the residues of substances like,
    1. Group A Substances with anabolic effect and unauthorized substances
    2. Group B Substances - Antibacterial/Veterinary drugs and Environmental contaminants
- Samples are collected from hatcheries, feed mills, aquaculture farms and processing plants, located in maritime states.

Ct Value

- The Indian Council of Medical Research (ICMR) said that all patients with a Ct value **less than 35** may be considered as Covid-positive while those with a Ct value above 35 may be considered as Covid-negative.
- [Globally, the accepted cut-off for Ct value for Covid-19 varies from 35 to 40, depending on instructions from the equipment's manufacturers.]
- The 'Cycle Threshold value' (Ct value) refers to the number of cycles in RT-PCR tests after which the virus can be detected.
- **Working** - In an RT-PCR test, RNA is extracted from the swab collected from the patient. It is then converted into DNA, which is then amplified.
- [Amplification refers to the process of creating multiple copies of the genetic material — in this case, DNA.]
- This improves the ability of the test to detect the presence of virus.
- Amplification takes place through a series of cycles and it is after multiple cycles that a detectable amount of virus is produced.
- According to the ICMR advisory, the Ct value of an RT-PCR reaction is the number of cycles at which fluorescence of the PCR product is detectable over and above the background signal.
    1. If a higher the Ct value, it implies that the virus went undetected when the number of cycles was lower.
    2. The lower the Ct value, the higher the viral load - because the virus has been spotted after fewer cycles.
- Although Ct value is inversely correlated with viral load, there is no correlation between a Ct value and severity of disease or mortality in patients with Covid-19 disease.
- The ICMR advised not to use a lower cycle threshold parameter as it would lead to missing several infectious persons.
- Ct values may differ between nasal and oropharyngeal specimens collected from the same individual.

SARS-Unique Domain

- From comparisons of the RNA genomes of innocuous coronaviruses with those of the SARS coronavirus, researchers identified a region that only occurred in the latter called the "SARS-unique domain" (SUD).

- Such genomic regions and their protein products might be linked to the extraordinary pathogenicity of SARS and SARS-CoV-2 coronavirus.
- The SARS viruses enhance the production of viral proteins in infected cells, so that many new copies of the virus can be generated.
- Coronaviruses other than SARS-CoV (which causes SARS) and SARS-CoV-2 (which causes Covid-19) do not use this mechanism.
- The new study showed that the SUD proteins of these viruses interact with a human protein called Paip-1, which is involved in the first steps of protein synthesis.
- Together with Paip-1 and other proteins in human cells, SUD binds to the ribosomes, the molecular machines that are responsible for protein synthesis in cells.
- This would lead to an enhancement of the production of all proteins, both those of the host cell and those of the virus.
- However, in cells infected with SARS-CoV or SARS-CoV-2, the messenger RNA molecules that code for host proteins are selectively destroyed by a viral protein named Nsp1.
- As a result of this complicated process, the infected cell produces viral proteins, so that many new copies of the virus can be created.

Letter warning Civil War in France

- A letter signed by about 1,000 service personnel in France, including some retired generals warning President Emmanuel Macron that the country is heading for a “civil war”, has angered the French government.
- The signatories through the controversial letter had,
    1. Warned Macron, his government and legislators of “several deadly dangers” that threaten France, such as Islamism.
    2. Criticises the government crackdown on the Yellow Vest protests and also its policies.
- The government said that those signatories who are still serving the military would be punished under a law dictating that military personnel have to be politically neutral.
- It warned that for any of the signatories who have violated the duty of reserve, sanctions are planned.
- **Timing of the letter** is significant as it was released on the anniversary of a 1963 failed rebellion against former French President General de Gaulle.
- The coup plot was engineered by generals who wanted to keep Algeria, then a French colony, from gaining independence.

Maharashtra’s Two-child Norm

- Recently, a woman prison officer in Maharashtra was dismissed from service after an inquiry revealed that she suppressed the information of having had three children prior to her joining the department in 2012.
- The Maharashtra Civil Services (Declaration of Small Family) Rule of 2005 makes the Small Family norm an additional essential requirement for Groups A, B, C, D of Maharashtra government employees.
- The Rules define a small family as wife, husband and two children.
- It stipulates that a person is not eligible for a job with Maharashtra Government if he or she has more than two children after 2005. The definition of child under these rules does not include adopted children.
- It mandates filing a small family declaration at the time of applying for a government job.
- A person having more than two children on the date commencement of the rule (March 28, 2005), shall not be disqualified so long as the number of children on the date of commencement does not increase.
- Also, one or more than one children are born in a single delivery within a year of commencement, shall not be considered for the disqualification of the rules.
- The rules also empower the state government to give relaxation in 'just and reasonable' manner and mandates recording such reasons.

Other states

- Maharashtra is one of the few states in the country that have a 'two children' policy for appointment in government jobs or even for the elections of some local government bodies.
- [Other states with children norm - Rajasthan, Madhya Pradesh, Andhra Pradesh and Telangana, Gujarat, Odisha, Uttarakhand and Assam.]

Explosion Mechanism of Supernovae

- A team of Indian astronomers observed a distant Type Ia Supernova called SN 2017hpa, which exploded in 2017.
- This helped narrow down the explosion mechanism of the supernovae (SNe) by observations of unburned carbon in the early phase spectra.
- Type Ia supernovae (SNeIa) are result of explosions of white dwarfs that exceed their mass beyond the Chandrasekhar limit through accretion of matter.
- Their homogeneous nature makes them extremely good standardizable candles to **measure cosmological distances**.
- While most SNeIa are homogeneous, a good fraction of these events show diversity in both their light curve as well as spectral properties.
- The study will help understand the diversity as a function of progenitor as

well as its properties and the explosion mechanism of such SNe.

- [Progenitor systems - star which is at the origin of a supernova phenomenon.]
- The burning front in the white dwarf moves or propagates at speeds less than speed of sound which leaves behind unburned material.
- The expansion velocity calculated using these unburned features can provide a hint towards the velocity structure of the ejected material.
- It is generally expected that the unburned material will be present in the outermost layers of the ejecta and expand with velocity higher than photospheric velocity (velocity of the outer most layer of the star).
- This study has shown that the unburned layer is moving with photospheric velocity indicating that mixing of the explosion materials is dominant within the ejected material.

Source: PIB, The Hindu, The Indian Express