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D-Dimer Test

- Seeing the current trend of failed RT-PCR tests, doctors have suggested other tests when reports of patients with symptoms of coronavirus come negative. The suggested tests are D-Dimer, CRP, Interleukin-6.
- The latest wave has led to the new and rare symptoms such as blood clotting, in which case, the-above mentioned tests are required.

- **D-Dimer** - When a body part is damaged or is bleeding, the body tries to stop the bleeding by clumping together the cells there to make a network using fibrin protein. This makes a blood clot.
- When the healing is done, the body starts to degrade that clot and starts breaking down the fibrin. When the fibrin breaks down, it forms fibrin degradation products or FDPs. One of the FDP is D-Dimer.
- **Test** - The D-Dimer test shows the presence of clots in the lung of the body when COVID becomes serious.
- D dimer is detectable for up to 8 hours after formation until the time the kidney clears it out.
- A higher level of D dimer in the body shows that there is a lot of clot in the body which can be a dangerous sign when affected with COVID.
- So D-Dimer test is used to assess for severity of COVID disease and if the patient is going to need oxygen in the future.

Whiteflies Invasion

- The results of a study by a team from ICAR- National Bureau of Agricultural Insect Resources that set out to investigate a coconut field in Tamil Nadu in 2016 are released.
- **Patterns of occurrence** - The study found that there are about eight invasive species found in India.
- Most of these species are native to the Caribbean islands or Central America [or both]. It is difficult to pinpoint how they entered India.
- May be a nymph or baby insect may have come along with imported plants.
- Out of curiosity, people randomly pluck and bring tiny plants which lead to the accidental introduction of invasive species.
- **Invasion** - The first invasive spiralling whitefly Aleurodicus dispersus reported from Kerala in 1995 is now spread across India except Jammu &

Kashmir.

- Similarly, the rugose spiralling whitefly which was reported in Pollachi, Tamil Nadu in 2016 has now spread throughout the country including the islands of Andaman Nicobar and Lakshadweep.
- **Reasons** - The host range of all of the invasive whiteflies was increasing due to their polyphagous nature (ability to feed on various kinds of food) and prolific breeding.
- Aleurodicus dispersus and Aleurodicus rugioperculatus have been reported on over 320 and 40 plant species, respectively.
- Other invasive whiteflies were found to expand their host range on plants species, especially coconut, banana, mango, sapota, guava, cashew, and ornamental plants and important medicinal plants.
- **Control** - Entomopathogenic fungi (fungi that can kill insects) specific to whiteflies are isolated, purified, grown in the lab or mass-produced.
- They are applied into the whitefly infested field in combination with the release of lab-reared potential predators and parasitoids.
- Continuous monitoring of the occurrence of invasive species, their host plants and geographical expansion is needed.

Sensitive Birds

- A new study noted that juvenile zebra finches raised in an environment that simulated city traffic noise had weaker immune responses and delayed vocal development than chicks raised in quiet nests.
- These findings indicate that young songbirds, just like human children, are particularly vulnerable to the effects of noise because of its potential to interfere with learning at a critical developmental stage.
- The traffic noise pollution also has the potential to affect the cultural evolution of birdsong.
- A previous study proposed that traffic noise reduced breeding success in Willow Warblers (Phylloscopus trochilus).
- Another paper found that hearing the noises of cars driving by was enough to inhibit cognitive performance in songbirds.
- The loud noise has been known to disrupt the ability of birds to communicate and even attract mates.

Tentative List of UNESCO World Heritage Site

- The Archaeological Survey of India forwarded the Maharashtra government's tentative serial nomination seeking the World Heritage Site tag for 14 forts, to UNESCO through the Ministry of Culture.
- These 14 forts are from the era of 17th century Maratha king Chhatrapati Shivaji Maharaj on the theme of Maratha Military Architecture in

Maharashtra.

- **Tentative Lists** - The UNESCO has accepted the serial nomination in Tentative Lists of its World Heritage Site (WHS).
- According to the World Heritage Convention's guidelines, a tentative list is an "inventory" of properties a country believes deserves to be a WHS.
- After UNESCO includes a property in the Tentative List, that country has to be preparing a nomination document that will be considered by the UNESCO World Heritage Committee.
- **WHS** - A WHS is a location with a cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity".
- The list of WHS is maintained by the international 'World Heritage Programme', administered by the UNESCO World Heritage Committee.

The 14 Forts in Maharashtra's proposal

- **Raigad Fort or Rairi Fort** - It is built on a large wedge of a hill in the Sahyadris, separated from the main range by a ravine.
- The capital fort of the Maratha Empire, it was rebuilt for the coronation of Chhatrapati Shivaji Maharaj.
- **Rajgad Fort** - Hill fort in Pune district, capital of the Maratha Empire under Shivaji for 26 years, before the capital moved to the Raigad Fort.
- **Shivneri Fort** - Near Junnar in Pune district. It is Shivaji's birthplace, and an example of Bahamani/ Nizamshahi architecture providing a backdrop to narrative of guerrilla warfare.
- **Torna Fort** - It was captured by Shivaji in 1646, and this marked the beginning of the Maratha empire.
- **Lohagad** - Close to Lonavala, it is an example of Maratha hill fort architecture until Peshwa period.
- **Salher Fort** - One of the highest forts in Sahyadris, located in Dolhari range, Nashik. Battle of Marathas and Mughals happened here in 1672.
- **Mulher Fort** - Surrender of Mulher in Nashik ended 3rd Maratha War.
- **Rangana Fort -** Aurangzeb tried to conquer this fort in Kolhapur along with Bhudargad and Samangad in his Deccan campaign, did not succeed.
- **Ankai Tankai Forts** - In Nashil district, Ankai and Tankai are separate forts on adjacent hills, with a common fortification wall.
- **Kasa Fort or Padmadurg** - It was built on a rocky island off coast of Murud, and provided a base for naval military operations.
- **Sindhudurg Fort** - This sea fort was built by Shivaji in 1668. It is considered a masterpiece in military defence.
- **Alibag Fort or Kulaba Fort** - One of the Naval base of Shivaji.
- **Suvarnadurg** - Built on an island, it was repaired by Shivaji in 1660.

- **Khanderi Fort** - It is located in Khanderi or Kanhoji Angre Island.
- Built in 1679, Khanderi Fort was the site of many battles between Shivaji Maharaj's forces and the navy of the Siddhis.

New Corona Variants escape Immune Response

- A new study found out how the fast-spreading variants of the SARS-CoV-2 coronavirus carry mutations that enable the virus to escape some of the immune response created naturally or by vaccination.
- [New variants are Brazilian variant (P.1), the United Kingdom variant (B.1.1.7), South African variant (B.135.1) and Indian variant (B.1.617).]
- **Study** - The scientists mapped how important classes of neutralising antibodies bind to the original pandemic strain of SARS-CoV-2 and how the process is disrupted by mutations found in new variants.
- In the study, the researchers focused mainly on three mutations in the SARS-CoV-2 spike protein: K417N, E484K and N501Y.
- Alone or in combination, these mutations are found in most major SARS-CoV-2 receptor binding site, where the virus attaches to host cells.
- Several of these mutations are clustered in one site, known as the "receptor binding site", on the spike protein of the virus.
- **Findings** - Antibody responses to the SARS-CoV-2 receptor binding site are very potent in neutralizing the original Wuhan strain.
- But certain new variants with mutations are able to escape the antibody responses - perhaps eventually necessitating updated vaccines.
- Also, the three key viral mutations do not alter other vulnerable sites on the virus outside the receptor binding site.

Source: The Hindu, The Indian Express

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