



Current Affairs of the Day

GS Paper III

- 'Delta plus' and an emerging public health threat
- Row over study on bat viruses in Nagaland
- Are your staple rice and wheat losing their nutrients?



'Delta plus' and an emerging public health threat

The story so far: Scientists around the world and in India are concerned about 'Delta plus', an emerging form of the Delta variant of the novel coronavirus, which allows it to "escape" antibodies in recently approved treatment regimes.

What is the Delta plus variant?

1. Formally known as AY.1 or B.1.617.2.1, it's a variant of Delta (B.1.617.2), which was first identified in India. It has an additional mutation called K417N, which has previously been identified in the Beta variant (first found in South Africa) and the Gamma variant (first detected in Brazil).
2. These variants are characterised as being highly infectious and may reduce the potency of vaccines.

Why is it an area of concern?

1. The Delta variant is now regarded as the most prevalent one in India, comprising nearly 31% of the 21,000 community samples processed until late May.
2. This variant has significant differences compared to the strain that has been used by pharma companies to design vaccines, and tests are needed to check if the existing vaccines continue to be effective against the variants dominant now.
3. Tests in the U.K., South Africa, and Brazil have shown that vaccines, while effective, appear to produce fewer antibodies when confronted with variants such as Delta.
4. The concern is that because the Delta variant has a cavalcade of mutations that have allowed it to dominate in several countries, including India, another form may pose new challenges to the management of the pandemic in India.

Row over study on bat viruses in Nagaland

The story so far: A government inquiry report on a 2019 study conducted by Indian institutions on bat viruses in Nagaland referred to the need to ensure that studies follow all regulations in order to pandemic-proof the future.



Why is it in the news?

1. In December 2019, the Union Ministry of Health began an inquiry into the study as it felt that appropriate permissions had not been taken by the National Centre for Biological Sciences (NCBS) and the Tata Institute of Fundamental Research (TIFR) from the Indian Council for Medical Research (ICMR) before accepting foreign funding and collaborations for the study.
2. The government investigation and subsequent queries spoke of “concerning lapses” in the study protocols and also questioned whether the bat samples (nucleic acid extracts) should be stored at the NCBS, Bengaluru or at the National Institute of Virology lab in Pune run by the ICMR, which has a higher Biosafety Level-4 standard rating.

What did the NCBS claim?

The NCBS denied all the charges. The NCBS also denied that the contribution of Shi Zhengli, known as China’s ‘Bat Woman’ for her studies on virus transmissions, was anything more than the supply of “chemical reagents”. However, the study lists Dr Shi as having “reviewed writing and editing” of the paper.

Is there a Wuhan connection to the Indian study?

No, say both officials and scientists. The Indian study looked at filoviruses (such as Ebola and Marburg), while the Wuhan studies, which originally collaborated with the U.S. University of North Carolina (UNC) and were funded by the National Institutes of Health (NIH), looked at coronaviruses SARS and MERS.

However, as demands grow for more transparency in collaborations with the Wuhan Institute, which was inspected as part of the World Health Organization’s study into the origins of the pandemic, there is a renewed focus on the NCBS-TIFR study.

What next?

1. Significantly, the Centre has not pursued its questioning on the U.S. funding and the Wuhan collaboration in the case of the Nagaland study with NCBS-TIFR without ICMR approval and has confined its inquiry to the storage of samples.



2. However, the ongoing pandemic with new variations is expected to trigger more public scrutiny into future research. Some scientists have voiced concerns about a “chilling effect” in the name of bio-security, on much needed scientific freedoms for research, which involves the collection of possibly infectious samples and studies on mutations.
3. As long as the issue of the origin of the virus that was first detected in Wuhan remains unresolved, questions will linger.

Are your staple rice and wheat losing their nutrients?

1. Rice, domesticated by humans over 10,000 years ago has now become the staple food for more than three billion people. But today’s rice does not have the same density of essential nutrients as those cultivated 50 years ago, notes a new study.
2. Researchers from various institutes under the Indian Council of Agricultural Research (ICAR) found depleting trends in grain density of zinc and iron in rice and wheat cultivated in India.

Falling nutrients

1. The team noted that zinc and iron concentrations in grains of rice cultivars released in the 1960s were 27.1 mg/kg and 59.8 mg/kg. This depleted to 20.6 mg/kg and 43.1 mg/kg, respectively in the 2000s.
2. In wheat, the concentrations of zinc and iron --- 33.3 mg/kg and 57.6 mg/kg in cultivars of the 1960s, dropped to 23.5 mg/kg and 46.4 mg/kg, respectively in cultivars released during the 2010s.
3. There could be several possible reasons for such depletion: one is a 'dilution effect' that is caused by decreased nutrient concentration in response to higher grain yield. This means the rate of yield increase is not compensated by the rate of nutrient take-up by the plants. Also, the soils supporting plants could be low in plant-available nutrients.
4. Zinc and iron deficiency affects billions of people globally and the countries with this deficiency have diets composed mainly of rice, wheat, corn, and barley.



5. Though the Indian government has taken initiatives such as providing supplementation pills to school children, it is not enough. We need to concentrate on other options like biofortification, where we breed food crops that are rich in micronutrients.

Not sustainable

The paper concludes that “growing newer-released (the 1990s and later) cultivars of rice and wheat cannot be a sustainable option to alleviate zinc and iron malnutrition in the Indian population. These negative effects need to be circumvented by improving the grain ionome (that is, nutritional make-up) while releasing cultivars in future breeding programmes.