

IIT INDORE STUDY REVEALS

More than 5,500 mutant variants of coronavirus all over world

CHANGING EFFECT
with protein binding
of each variant

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More than 5500 mutant variants of Covid-19 are present in the world, claims a study by Indian Institute of Technology Indore.

The change in protein present in the virus changes the appearance of the virus. It is only by changing the binding of this protein that the virus's outbreak and its effect are changing. Many all these 5500 variants have been found in India too.

The study, which has been conducted by Dr Hemchandra Jha and six other researchers at Infection Bioengineering lab of IIT Indore, would be published in an international journal Heliyon.

The research team has put forward possible impacts of various mutations in SARS-CoV-2. The study mainly focuses on the mutations from proteins present on the surface of the virus. The timeline of origin for some mutations which are observed in



larger number was being studied.

According to Jha, the SARS-CoV-2 virus which is responsible for the pandemic contains three major types of proteins. One or more of these proteins, identified by the names E, M and S, change over time. IIT Indore studied more than 21000 protein sequences of the virus worldwide. This includes samples from the UK to the USA, India and other countries. From January, 2020 to July, these isolates were taken from samples of viruses that had reached the labs all over the world.

"Our research revealed that a total of 5,647 mutant variants have also been found so far," Jha said. Ac-

cording to Jha, 42 mutants of E protein, 156 mutants of M and 5449 mutants of S protein i.e. Spike protein were identified in the study.

It is clear that mutations are taking place in highest number in S or spike proteins. The proteins that look like thorns on the outer shell of the virus are called spike proteins. When a mutant changes its protein, its binding capacity also changes. That is why the virus affects each variant differently. The virus's protein binds to the ACE-2 receptor found in the human body and infects people. Jha team included Shweta Jakhmola, Omkar Indari, Dharmendra Kashyap, Nidhi Varshney, Ayan Das and Manivannan Elangovan.