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BRICS scientists to carry out genomic sequencing, mathematical modelling of COVID-19

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The research plan has been developed considering the strengths of international collaborators



Indian scientists, in partnership with scientists from China, Russia and Brazil, will carry out genomic sequencing of SARS-CoV-2 and studies on the epidemiology and mathematical modelling of the COVID-19 pandemic.

This will help trace genetic mutations, recombinations as well as distribution of the virus and also make projections about the future of its spread.

Whole-genome sequencing is required for the identification of genetic mutations and recombinations of the virus, while epidemiological studies can help assess its distribution. Mathematical modelling is required to assess its future spread.

A research plan has been made by including the expertise of scientists and engineers from diverse backgrounds.

Under this research supported by the Department of Science and Technology, India and Brazil sides will assess the distribution of SARS-CoV-2 in environmental samples through metagenome analysis for wastewater-based epidemiology (WBE) surveillance.

Chinese and Russian scientists will carry out the Real-Time PCR detection of SARS-CoV-2 in biological material (nasopharyngeal swabs) from patients with symptoms of respiratory diseases and investigate the genomic variability, comparative genomics and phylogenetic analysis.

The genomic, metagenomic and epidemiological data from India, China, Russia and Brazil will be integrated to develop mathematical models for mutations analysis, population genetics, phylogenetic relationship, recombination analysis and risk evaluation to reveal the spreading network and dynamics of the virus.