

# Ability to smell can detect asymptomatic Covid-19 infection: Pune researchers

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## IISER researchers develop olfactory-action meter; seek industries' help utilise the research for masses

In a paper published in The Lancet's *EClinicalMedicine* on October 16, researchers from IISER Pune report that by accurately measuring the ability to smell, one could detect an asymptomatic Covid-19 infection caused by the SARS-CoV-2 virus.

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The research team led by Indian Institute of Science Education and Research (IISER) faculty Nixon Abraham along with PhD student Anindya Bhattacharjee and collaborators from the BJ Medical College and Sassoon General Hospitals in Pune, the team tested if anosmia (total loss of sense of smell) / hyposmia (reduction in the ability to smell) could be an indicator of Covid-19 infection in individuals who tested positive for the virus but showed no other typical symptoms of the disease.

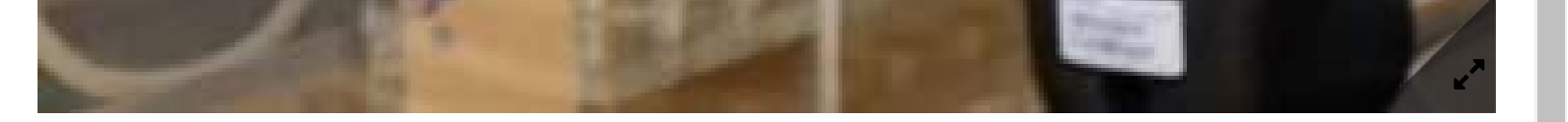
### Ofactory-action meter

The team first designed and custom-built an olfactory-action meter, that can determine with precision how well, one can smell.

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“Our instrument offers many advantages over the existing clinical methods for assessing olfaction. It delivers odours in a controlled fashion, assesses





the olfactory health status in less than 20 minutes of testing, and can innocuously quantify deficits under infective conditions as it has built-in safety precautions to prevent cross-contamination,” Abraham said in a statement.

The methods and parameters established by the study can potentially be translated into a sensitive, fast and economical olfaction-based screening assay that can be self-administered by large populations, according to Abraham.

## Mass screening

Speaking to *BusinessLine*, Abraham said: “The instrument we have developed could be used for infectious and non-infectious diseases. Mass screening could be carried out using this instrument and there is a need to make it a practice in hospitals.”

He said the first instrument is being used in BJ medical college. “We appeal companies to come forward and help us further optimise the research,” Abraham added.

Through this method of screening, the team has analysed detection indices at varying odour concentrations as well as olfactory matching abilities across various odours.

“This allowed us to generate an olfactory function score, which was unique to each individual tested,” said Anindya Bhattacharjee.

## Experimental parameters

The research team optimised the experimental parameters by first testing normal healthy subjects. They then assessed olfaction in asymptomatic Covid-19 patients admitted in the hospital. The method optimised by the team identified olfactory dysfunction in 82 per cent of asymptomatic Covid-19 carriers. In comparison, only 15 per cent of the same set of patients reported a loss of olfaction in self-reporting paradigms.

Using this method, the team says that they can analyse both sensory (pertaining to sensory neurons in the nose) and cognitive aspects (problems at the central nervous system, beyond the nose) of olfaction.

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