

# Finding molecular traces of explosives possible

Researchers from RGUKT, UoH develop the novel technology

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Researchers from Rajiv Gandhi University of Knowledge and Technologies (RGUKT), Basar, and University of Hyderabad (UoH) developed a novel technology that can detect traces of explosives in their molecular form.

Developed by city-based researchers, it can detect chemical compounds, used to manufacture explosives in their most diluted state i.e. in 50 micromolar to 10 micromolar units. The results, which were published in the recent edition of Journal of Applied Physics, show that the technology was able to detect highly diluted concentrations of Ammonium Perchlorate — a chemical used to manufacture various forms of explosives. “Our study indicated that we can detect com-

**The results show that the tech was able to detect highly diluted concentrations of Ammonium Perchlorate, used to make explosives**

pounds that are in micromolar units. In due course, we can also detect compounds in concentrations on the scale of even less in nano and pico molar units,” says Professor Dr AP Pathak, IIIT (RGUKT), Basar.

The research work also has a possible application in DNA detection. During the course of the study, the researchers detected highly diluted concentrations of cytosine, a nucleotide that is found in DNA. “Detection of chemicals in their molecular form has multiple applications that can be developed commercially. While we managed to develop the technology to detect such minute concentrations, the

challenge now lies on coming out with a viable commercial application,” says Dr Pathak. The group of researchers from UoH, which comprised VS Vendamani, SVS Nageswara Rao, S Venugopal Rao, D Kanjilal and Dr Pathak, improvised on the Raman spectroscopy technique that uses scattering of laser light to identify or detect low concentration of chemicals.

“Unlike the traditional Raman spectroscopy tests that are usually expensive to conduct in laboratories, our method of conducting the test itself is optimised and innovative, which helped reduce the cost,” the researchers said.