

New tech to help early diagnosis of diseases

TIMES NEWS NETWORK

Indore: One can now expect medical test reports instantly and **early diagnosis of diseases**, using bio-fluids like urine, blood and saliva, claimed Indian Institute of Technology (IIT) and Raja Ramanna Centre for Advanced Technology (RRCAT).

Detection of some of the fatal diseases like myocardial infarction and cancer can also be done much faster and at a very economical cost by using the latest technology - Nano-Trap Enhanced Raman Spectroscopy (NTERS) technique developed by IIT, Indore in collabo-

IIT-INDORE, RRCAT DEVELOP 'NTERS'

ration with RRCAT.

RRCAT and IIT have signed a memorandum of understanding to exchange technical expertise.

Surjendu Bikash Dutta, a PhD student at IIT, Indore and first author of the research said, "Traditional diagnosis of diseases from bio fluids are based on chemical analysis that uses chemicals and experts. These makes the tests expensive and

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time consuming but we have devised a technique using optical spectroscopy and nanoparticles, which is much faster and economical."

The new technique called NTERS is a simple and cost-effective way which does not involve any special sample preparation protocol and can be easily translated into clinical set-up to detect diseases from bio fluids.

The novel Raman signal enhancement technique has been developed by combining principle of optical tweezers and nanotechnology, NTERS, for the efficient detection of trace amount of bioanalytes, experts said.

Dr Sharad Gupta, assistant professor, Centre for BioSciences and Biomedical Engineering, IIT Indore

said, "The main objective of this research is to develop a faster, affordable and reliable technique to diagnose diseases. At present, pathologies takes around 24 to 48 hours to furnish test reports but with the help of this technique we can expect results in 10 to 15 mins."

This newly-devised technique can be used easily as it does not require any set up, it's portable, uses very less amount of the sample and does not destroy the sample, experts said. Recent research has demonstrated immense potential of Raman spectroscopy as a tool for disease diagnosis through specific detection of analytes present in body fluids, the research showed.

Co-guide of the research Dr Shovan K Majumder, scientist & head, Laser Biomedical Applications Section at RRCAT said, "With the help of optical spectroscopy and Raman spectroscopy in particular, one can detect any bio analytic present in a body fluid at a much rapid speed."

Majumder said the work on the research started around two years ago and the research is being done at the laboratory of RRCAT.