IISc scientists develop tech for early diagnosis

From Kalyan Ray DH News Service Indore:

The technology, scientists say, has the potential to transform the diagnostic industry as it would be possible to detect diseases on the first or second day itself.

Two Bangalore-based physicists have come out with a new technology for detecting a large number of diseases at a very early stage, when the disease burden is quite low.

Dr Ajay Sood and his colleague, Ajay Negi, from the physics department at the Indian Institut of Science have used tiny electrical pulses to improve the effectiveness of the classical antigen-antibody diagnostics, used for diagnosing most of the diseases, by more than 100 times. The technology, scientists say, has the potential to transform the diagnostic industry as would be possible to detect diseases on the first or second day itself.

The team is now not only holding discussions with the industry over technology transfer, but has also applied for patent protection through the Patent Cooperation Treaty of the World Intellectual Property Organisation.

infect the body, the body produces antibodies to fight these germs. For detecting causative agents in the pathology laboratory, another set of specific chemicals, including proteins like antigens, is used.

The outcome of an antigen-antibody reaction can be seen as a colour change or agglutiunation under a microscope to confirm the diagnostics. For instance, in the case of tuberculosis (TB), the diagnostic tool consists of an antigen that binds only to antibodies

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circulating in the blood. Most of the common diagnostics used antigen-antibody reactions.

"We have demonstrated the methodology. The efficacy improves at least by a factor of 100 and diseases can be detected on the second day itself," Dr Sood told Deccan Herald here on the sidelines of the Indian Academy of Sciences annual meeting at the Devi Ahilya Vishwavidyalaya on Sunday. This new technology, he added, was also successfully tested on a typhoid-detection kit designed by the Defence Research and Development Establishment, Gwa-lior. It relies on applying low voltage electric charges belov a certain threshold limit to the sample solution so that antigens and antibodies can come together for the required reaction. But if the voltage is too high, the antibodies will club together and destroy the reaction. "More work is required as we have evaluate the possibilities of false positive and false negative results. A prototype also needs to be developed and calibrated for various disease so that one instrument can be used for detecting a lot of diseases," Sood said.