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IIT-G develops 3D printed device for rapid diagnosis of urinary tract infection

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Estimated cost of manufacturing the device is Rs 608 while testing a single sample will cost Rs 8 only



The Indian Institute of Technology Guwahati (IIT-G) research team led by Dr Partho Sarathi Gooh Pattader has developed a fast, accurate, and reliable device to detect specific bacteria that cause Urinary Tract infection (UTI).

The estimated cost of manufacturing the device is Rs 608 while testing a single sample will cost Rs. 8 only.

UTI is prevalent in females especially during pregnancy and is caused by various bacteria. The conventional way to diagnose and detect the specific bacteria is by urine culture, which takes a minimum of two days. Without knowing the specific bacteria responsible for the infection, doctors cannot administer antibiotics to treat the UTI. This delay in detection creates a problem as the patient has to suffer till the cause of UTI is detected and the situation could be fatal in some cases.

The Point-Of-Care Testing (POCT) prototype developed at IIT Guwahati is a photodetector that detects and quantifies a specific UTI-causing bacteria called ‘Klebsiella pneumoniae’ within five minutes from a patient’s urine sample.

The biosensor prototype detects a change in the intensity of light when the aptamer-gold nanoparticles-bacteria come together. The detection time is fast because the aptamer and bacteria instantly combine. The developed prototype is also generic, i.e. the process is tunable for different types of bacteria and can contribute significantly to primary healthcare.