

# Biosensor developed by NITK researchers can detect dengue early

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**Mangaluru:** Researchers at the National Institute of Technology Karnataka, Surathkal, have developed an innovative biosensor that enables swift identification of dengue fever in its early stages. This groundbreaking device improves timely diagnosis of this viral disease, which is transmitted through mosquito bites and remains a significant health concern worldwide.

The novel diagnostic tool promises to revolutionise the detection process by offering an unprecedented level of sensitivity and cost-effective scalability. Researchers Prof Badekai Ramachandra Bhat, department of chemistry, NITK, Surathkal, and research scholar Shreeganesh Subraya Hegde have developed this device.

Bhat told TOI that currently, technology available



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in the market for detection of dengue NS1 protein is enzyme-based and has a short shelf life. However, their technology has a long shelf life as it is a carbon material. "The novel diagnostic tool, which utilises biomass-derived, high-surface, porous carbon-based materials, promises to revolutionise the detection process by offering an unprecedented level of sensitivity and cost-effective

scalability," Bhat said, adding that it is ready for technology transfer.

On how the technology works, Bhat explained that the biosensor's design and its electrochemical approach add precision and reliability to the detection process, allowing identification of even trace amounts of the virus in the early stages of infection. Further validation through real sample

analysis showcases the biosensor's practicality and effectiveness in real-world scenarios. "By enabling early and accurate dengue detection, this innovative technology holds immense potential for improving patient outcomes and strengthening disease management strategies worldwide," he said.

With dengue fever cases on the rise, the development of such a high-performance biosensor marks a significant step forward in global health efforts, according to researchers. Bhat said they received an Indian patent for the work in Jan 2025. They started working on the project at the end of 2023 and applied for the patent in mid-2024. "We remain highly optimistic about its potential for large-scale deployment, offering hope for faster diagnosis and timely medical intervention in regions heavily affected by the disease," Bhat said.