

New Biosensor Detects Bacteria that Poisons Food

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A new biosensor can accurately detect the food poisoning bacteria *Salmonella typhimurium* in contaminated food and water samples, claim scientists at the CSIR Institute of Microbial Technology, Chandigarh in a recent paper published in the journal *Biosensors & Bioelectronics*.

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Salmonella typhimurium infection accounts for the maximum number of deaths from contaminated water and food. It is category-B grave bioterrorism agent because the infection is rapid and if untreated, fatal.

Scientists identified and purified a surface protein of *Salmonella typhimurium* called OmpD to generate specific antibodies after immunizing rabbits with purified OmpD protein. They developed a novel biosensor by conjugating the OmpD-specific antibodies (Ab) to a matrix that was composed of reduced Graphenegraphene oxide (rGO) on a screen printed carbon electrode (SPE) and named it as Ab/rGO/SPE biosensing platform.

The scientists proudly say, "This is the first report on the detection of *Salmonella typhimurium* species using a specific biomarker, OmpD. The developed technique could be very useful for the detection of nontyphoidal Salmonellosis and is also important from an epidemiological point of view". They tested the biosensor on contaminated litchi and orange fruit juice and found that it could detect very few bacteria with little time and effort.

The biosensor can be used in making clinical kits to detect *Salmonella typhimurium* contamination in food and water, and infected patient samples with high specificity and sensitivity.

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