Carbon Nanotube-Based Biosensor for Pathogens Concentration and Detection

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Purpose of the Study

Carbon nanotube technology has the potential to improve water treatment and protection from biological threats. The researcher will explore the use of carbon nanotubes and other nanoporous materials in adsorption, membrane distillation, pathogen concentration, and pathogen detection. In particular, the researcher will look at the efficacy of carbon nanotube technology in detecting and removing biological contaminants from drinking water.

Study Underway

→ The researcher will use carbon nanotube in various configurations as part of a filtration device to concentrate pathogens in water and as an in-stream pathogen capture device.

→ Surface modifications to the carbon nanotubes will be made to maximize the binding of pathogens to the nanotubes.

→ The extraction of bound organisms from the nanotubes will be optimized.

→ The carbon nanotubes that prove effective will be synthesized.

Benefits

→ A carbon-nanotube-technology biosensor for the detection of several common bacteria in drinking water is expected to be developed.

Saha operates an XRD machine in the lab.