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Biochar Use in Sensors

ISTC researcher examined biochar as a cost-effective, more sustainable replacement for activated carbon in electrodes inside sensors for water quality tests. As a part of the I-STEM (Illinois Science, Technology engineering, and Mathematics Education) High School Summer Research Experience, Chris Yim – a University Laboratory High School student – worked with Jiang to develop sensors made with biochar, which were designed to detect nitrite in water.



The sensors were able to detect nitrite in water at concentrations as low as 9.2 mg/L (milligrams per liter) which is only three time more than the **USEPA (United States Environmental Protection Agency)'s maximum contaminant level** of 3.29 mg/L (milligrams per liter) nitrite but is still well under the fatal dose of nitrite for an average adult. More research is needed to refine the sensitivity but the researchers hope that this will become a low-cost nitrite testing solution for underdeveloped and developing countries.

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Biochar

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Carbon Black Replacement

Biochar Use in Sensors

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