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**OBSERVATORY**

## **A Simple Paper Test May Detect Pesticides**

By [HENRY FOUNTAIN](#)

Testing food or water for pesticide contamination usually involves sending samples off to a laboratory for analysis, at significant cost in time and money.

But scientists at [McMaster University](#) in Hamilton, Ontario, are reporting the development of a simple paper sensor — a “laboratory on a strip” — that can be dunked in a sample and give a reading a short time later, like a litmus test.

The sensor, developed by John D. Brennan and colleagues, makes use of the fact that organophosphate pesticides like diazinon inhibit the action of acetylcholinesterase, an enzyme involved in nervous system function.

The paper strip, which is [described](#) in the journal *Analytical Chemistry*, includes an area near one end containing the enzyme and an area near the other end containing a compound called IPA, which turns blue when broken down by acetylcholinesterase.

Dipping the enzyme end into a sample allows it to flow by capillary action to the enzyme. Then dipping the other end into water allows the IPA to flow to the enzyme, carried along by the water. If there are no pesticides in the sample, the paper will turn blue; if pesticides are present, the color will be less intense depending on the pesticide concentration.

The researchers say the strips, which have a long shelf life, could be a rapid and cost-effective way to test for environmental contaminants, particularly in poorer regions.

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