

Tobacco and its evil cousin, nicotine? They're good -- as a pesticide

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Tobacco, used on a small scale as a natural organic pesticide for hundreds of years, is getting new scientific attention as a potential mass-produced alternative to traditional commercial pesticides. That's the topic of a report in ACS' journal *Industrial & Engineering Chemistry Research*.

Cedric Briens and colleagues note that concerns about the health risks of [tobacco](#) have reduced demand and hurt tobacco farmers in some parts of the world. Scientists are looking for new uses for tobacco. One potential use is as a natural pesticide, due to tobacco's content of toxic nicotine.

For centuries, gardeners have used home-made mixtures of tobacco and water as a natural pesticide to kill insect pests. A "green" pesticide industry based on tobacco could provide additional income for farmers, and as well as a new eco-friendly pest-control agent, the scientists say.

They describe a promising way to convert tobacco leaves into [pesticides](#) with pyrolysis. That process involves heating tobacco leaves to about 900 degrees Fahrenheit in a vacuum, to produce an unrefined substance called bio-oil. The scientists tested tobacco bio-oil against a wide variety of insect pests, including 11 different fungi, four bacteria, and the Colorado potato beetle, a major agricultural pest that is increasingly resistant to current insecticides. The oil killed all of the beetles and blocked the growth of two types of bacteria and one fungus.

Even after removal of the nicotine, the oil remained a very effective

pesticide. Its ability of the oil to block some but not all of the microorganisms suggests that tobacco bio-oil may have additional value as a more selective pesticide than those currently in use, the report indicates.

More information: "Experimental Investigations into the Insecticidal, Fungicidal, and Bactericidal Properties of Pyrolysis Bio-oil from Tobacco Leaves Using a Fluidized Bed Pilot Plant" *Industrial & Engineering Chemistry Research*.

Provided by American Chemical Society

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