Natural pesticide | Photo source Pixabay

NATURAL PESTICIDE DOES NOT HARM INSECTS

SUSTAINABILITY

Researchers have developed a natural pesticide that does not harm beneficial insects by combining genetic insights with new plant breeding methods.

One problem with synthetic insecticides is that they not only kill pests, they also kill insects that are beneficial, like bees, beetles and butterflies. This, in turn, can have an adverse effect on the biodiversity of entire ecosystems. When water runs off fields and into lakes and streams, it carries the insecticide with it and endangers the life of wildlife living in those areas as well. We have previously seen a number of innovations aiming to farm more sustainably. These innovations include an app to help farmers identify plant diseases and a robot that scares away pests. Now, a team of researchers from the Technical University of Munich (TUM) has developed a biodegradable pesticide that spreads a smell which keeps unwanted insects away.

Professor Thomas Brück and his team in the Department of Industrial Biotechnology were inspired by the tobacco plant, which produces a natural pesticide, called cembratrienol, to protect itself. The researchers first isolated the parts of the tobacco genome responsible for production of the natural repellent. They then inserted these into the genome of E. coli bacteria. The genetically modified bacteria is grown in large vats. The pesticide is then separated out and used as a spray.

Studies by the researchers have shown that the cembratrienol spray can protect against aphids, but is non-toxic to insects. It also does not accumulate in the environment. As an added bonus, the spray appears to have an anti-bacterial effect. This means that it can be used as a non-toxic disinfectant. The researchers feel that cembratrienol could be used against pathogens such as

those that cause MRSA, pneumonia pathogen and listeriosis. According to Brück, the spray could be the key to a “fundamental change in crop protection,” by focusing on aggravating pests instead of killing them. Will natural pesticides prove as effective at pest control as synthetic pesticides?

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Email: brueck@tum.de
Website: www.tum.de
Contact: www.tum.de/en/about-tum/contact-directions