

Proteins in unroasted coffee beans may become next-generation insecticides

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Unroasted coffee beans contain proteins that kill insects, a finding that may lead to new insecticides for protecting food crops. Credit: Fernando Rebelo, Wikimedia Commons

Scientists in Brazil are reporting for the first time that coffee beans contain proteins that can kill insects and might be developed into new insecticides for protecting food crops against destructive pests. Their study, which suggests a new use for one of the most important tropical crops in the world, appears in ACS' *Journal of Agricultural and Food Chemistry*.

Peas, beans and some other plant seeds contain proteins, called globulins, which ward off [insects](#). Coffee beans contain large amounts of globulins, and Paulo Mazzafera and colleagues wondered whether those coffee

proteins might also have an insecticidal effect. The high heat of roasting destroys globulins, so that they do not appear in brewed coffee.

Their tests against cowpea weevil larva, insects used as models for studying the insecticidal activity of proteins, showed that tiny amounts of the coffee proteins quickly killed up to half of the insects. In the future, scientists could insert [genes](#) for these insect-killing proteins into important food crops, such as grains, so that plants produce their own insecticides, the researchers suggest. The proteins appear harmless to people.

More information: "Purification of Legumin-Like Proteins from *Coffea arabica* and *Coffea racemosa* Seeds and Their Insecticidal Properties toward Cowpea Weevil (*Caliosobruchus maculates*) (Coleoptera: Bruchidae)", *Journal of Agricultural and Food Chemistry*.

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