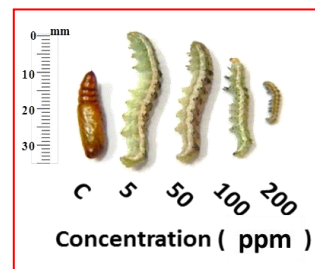


Dietary pesticides: Alternative to toxic pesticides

Nowadays, spraying of insecticides and pesticides on fruits and field crops has become common. Sometimes, even after careful washing of vegetables and fruits, pesticides are found inside the food or on the surface and are easily ingested in our body. This can lead to stomachache, diarrhea and other prolonged illnesses. CSIR-NCL has come up with a safer molecule(s) “dietary pesticide”, which on application not only reduces the growth of the insect pest in its infant stage but also does not cause any harm to the humans and overall to the ecosystem.

CSIR-NCL scientist Dr Giri and his team found an eco-friendly compound that can inhibit growth and development of insect pests. They screened several natural plant defensive compounds among them caffeic acid was found to be more effective.

An experiment was carried in which caffeic acid was fed to the insect larvae by adding in to artificial diet prepared in the laboratory. The larval mortality, reduction in body mass and in general adverse effect on larval growth and development was noted. Interestingly this molecule was found to remain stable in digestive track. Possible molecular target was identified. This work is published in reputed journal¹.



The inspiration for this research came by observing the natural phenomena that certain plants repel insect pests by producing specific compounds upon insect attack.

NCL’s senior scientist Dr Giri, comments that, ‘**It is necessary to search new sources of molecules from plants, micro-organisms and other organism.** It is important to learn from natural system and use such tactic to reduce damage by insect pests and diseases that reduces crop productivity.’ Presently CSIR-NCL is in the process of developing formulations using caffeic acid for agriculture application.

Reference:

¹[Joshi RS, Wagh T, Sharma N, Fayaj M, Sonawane U, Thulasiram HV, Joshi R, Gupta VS, Giri AP \(2014\) Way towards “Dietary Pesticides”: Mechanistic insight into insecticidal action of natural phenols. *Journal of Agriculture and Food Chemistry* 62, 10847-10854](#)