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MECHANISM OF REPELLENT ACTION AND CONTACT TOXICITY OF THE ESSENTIAL OIL EXTRACTED FROM CHINESE CHIVE AGAINST *PLUTELLA XYLOSTELLA* LARVAE

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Botanical pesticides are playing an increasingly important role in the control of agricultural pests. In this study, the insecticidal effects of the essential oil extracted from Chinese chive (EOC) against *Plutella xylostella* larvae were confirmed in terms of their repellent action and contact toxicity. The repellent actions of four pyrazines isolated from EOC were studied based on electroantennograms (EAG). The effects on glutathione S-transferase, carboxylesterase and acetyl cholinesterase were assayed after treatment with EOC. EOC had an obvious effect on the EAG and inhibited the activities of glutathione S-transferase and carboxylesterase in treated *P. xylostella* larvae, which could explain their repellent action and contact toxicity. In addition, two principal sulfide compounds in EOC, diallyl disulfide and methyl disulfide, were tested. Both showed the repellent action and contact toxicity against *P. xylostella* larvae, although weaker than the effects of EOC. The four pyrazines isolated from essential oil of Chinese chive showed better repellent activities than that of EOC.

Biography

Feng Tang completed his PhD in Tea Science at Anhui Agricultural University and Postdoctoral studies from Chinese Academy of Forestry. He worked as Professor of Pesticide Science at Anhui Agricultural University. He has published more than 200 papers in reputed journals and has been serving as Professor of Phytochemistry at the International Center for Bamboo and Rattan..

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