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[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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## Overview of Carboxylesterases and Their Role in the Metabolism of Insecticides

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### Abstract:

Carboxylesterases hydrolyze numerous endogenous and exogenous ester-containing compounds. They play a role in the detoxification of many agrochemicals including pyrethroids, organophosphates, and carbamates. Research on these enzymes is still developing and there are several topics that should be addressed to further investigations in this area. This paper focuses on a number of these issues including enzyme nomenclature, catalytic mechanism, substrate specificity, agrochemical metabolism, role in insecticide resistance and environmental significance. It is expected that carboxylesterase research will increase with specific emphasis on isozyme and substrate identification. Future research directions are discussed and the current state of the field is evaluated. © Pesticide Science Society of Japan

### Keywords:

carboxylesterase, metabolism, pyrethroid, organophosphate, carbamate, pesticide



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