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Insecticidal and Neuroblocking Activities in the American Cockroach (*Periplaneta americana* L.) of Mannich Bases of Nitromethylene Imidazolidine Neonicotinoids

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Abstract:
The insecticidal and neuroblocking activities of Mannich bases prepared from chloronicotinyl- and chlorothiazolylmethyl-nitromethylenimidazolidines, known potent insecticides, were measured in American cockroaches. The concentrations needed to cause neuroblocking in excised central nerve cord of the insects (BC) were 100–140 μM, far higher than those, 1.6–1.9 μM, for the starting compounds. However, the minimum lethal doses by injection (MLD) for the Mannich bases were 0.92–1.2 nmol, not very different from the values, 0.28–0.46 nmol, for the starting compounds. The half-life of the Mannich base decaying to the original molecule was 5.3 hr in a physiological solution, which also suggests the potential of Mannich bases as proinsecticides for nitromethylene molecules. © Pesticide Science Society of Japan

Keywords:
proinsecticide, nitromethylene insecticide, Mannich adduct, neuroblocking potency, American cockroach

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