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Resistance buster compounds for MBI-D insensitive rice blast fungus—Inquiry on effective compounds among derivatives of MBI-D fungicides—

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Abstract:
Effective molecules against resistant strains of *Pyricularia oyzae* to the melanin biosynthesis inhibitors (MBI-D) were designed by modifying the amine and acid parts of carpropamid {(1*RS*,3*SR*)-2,2-dichloro-*N*-[(*R*)-1-(4-chlorophenyl)ethyl]-1-ethyl-3-methylcyclopropanecarboxamide}. Substitution of the 1-phenylethylamine moiety with a 2-phenylethylamine increased the inhibitory activity against MBI-D-resistant strains. Reduction of the bulkiness of the amine part by replacing the benzene ring of 2-phenylethylamine with thiophene was effective to improve the activity. Among the derivatives, 5-chloro-3-ethylthiophene compounds showed the highest efficacy. Through the studies regarding structure–activity relationship of the compounds with five-membered heterocyclic rings, the discovery of new resistance buster compounds could be prospective. © Pesticide Science Society of Japan

Keywords:
resistant strains of MBI-D fungicides, resistance buster compounds, chemical modification of MBI-D compounds

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