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## Induction of Resistance against Rice Bacterial Leaf Blight by 3-Chloro-1-methyl-1H-pyrazole-5-carboxylic Acid

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### Abstract:

A pyrazole derivative, 3-chloro-1-methyl-1H-pyrazole-5-carboxylic acid (CMPA), exhibited high anti-rice blast activity without any significant antimicrobial activity. To assess the mode of action of CMPA, its effects on rice bacterial leaf blight caused by *Xanthomonas oryzae* pv. *oryzae* and the expression of a defense-related gene were examined. The treatment of CMPA reduced the disease symptoms in a dose-dependent manner, but CMPA did not exhibit any direct antibacterial activity against *X. oryzae* at concentrations up to 1 mg/ml. The treatment of CMPA induced the expression of *PBZ1*, a defense-related gene, which is evoked by several plant activators. This ability to induce *PBZ1* expression and enhance disease resistance without antimicrobial activity suggests that CMPA can activate systemic acquired resistance in rice as well as in tobacco. © Pesticide Science Society of Japan

### Keywords:

systemic acquired resistance, disease resistance, rice, rice bacterial leaf blight, probenazole

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