

Induction of Systemic Resistance to *Colletotrichum falcatum* in Sugarcane by a Synthetic Signal Molecule, Acibenzolar-S-Methyl (CGA-245704)

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The effect of a novel synthetic signal molecule, acibenzolar-S-methyl (CGA-245704; benzo [1,2,3] thiadiazole-7-carbothioic acid S-methyl ester), in inducing resistance in sugarcane against red rot disease caused by the fungus *Colletotrichum falcatum* Went was studied. Application of CGA-245704 as a soil drench or along with marcotting rooting mixture induced resistance in sugarcane to challenge inoculation with *C. falcatum*. When the pathogen was inoculated by the plug method, it caused discoloration in the untreated control stalk tissues; however, in the stalk tissues pretreated with acibenzolar-S-methyl, pathogen colonization was considerably reduced. When the pathogen was inoculated by nodal swabbing, its penetration was arrested in the sensitized stalk tissues. An induced systemic resistance effect was found to persist up to 30 days in the pretreated cut canes. Increased phenolic content and accumulation of pathogenesis-related (PR) proteins, *viz.*, chitinase, β -1,3-glucanase and thaumatin-like protein (PR-5), were observed in sugarcane plants treated with acibenzolar-S-methyl.

KEY WORDS: Chitinase; β -1,3-glucanase; induced systemic resistance; red rot; *Saccharum officinarum*; thaumatin-like protein.

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