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

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Thiadiazole carboxylic acid moiety of tiadinil, SV-03, induces systemic acquired resistance in tobacco without salicylic acid accumulation

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Abstract:

Systemic acquired resistance (SAR) is a potent innate immunity system in plants that is effective against a broad range of pathogens and induced through the salicylic acid (SA)-mediated pathway. Here we have characterized the SAR induction activity of 4-methyl-1,2,3-thiadiazole-5-carboxylic acid (SV-03) identified as a metabolite of tiadinil in rice. Soil drench application of SV-03 induces a broad range of disease resistance and *PR* gene expression in tobacco. Further analyses using NahG transgenic tobacco plants indicate that SV-03-induced resistance enhancement does not require SA. Therefore, it is suggested that SV-03 induced SAR by triggering signaling at the same level as or downstream of SA accumulation.

Keywords:

systemic acquired resistance (SAR), salicylic acid, tobacco, disease resistance

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