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Cloning and functional analysis of caffeic acid 3-*O*-methyltransferase from rice (*Oryza sativa*)

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Abstract:

A putative *O*-methyltransferase cDNA was cloned from UV-irradiated rice leaves based on an amino acid sequence reported as that of naringenin 7-*O*-methyltransferase, which is involved in the biosynthesis of a rice phytoalexin, sakuranetin. However, the recombinant protein (approximately 41 kDa) expressed in *Escherichia coli* showed not naringenin 7-*O*-methyltransferase activity but caffeic acid 3-*O*-methyltransferase activity. Semi-quantitative RT-PCR revealed that the mRNA was expressed in all tissues tested and was not affected by CuCl₂, jasmonic acid or UV treatment. The enzyme also methylated flavonoids which have two adjacent hydroxyl groups in the B ring. © Pesticide Science Society of Japan

Keywords:

methyltransferase, rice, lignin, phytoalexin, caffeic acid



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