Luteolin *O-methyltransferase* from Soybean

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Abstract

O-methyltransferase (OMTs) catalyze the transfer of a methyl group from S-adenosine-L-methionine to a hydroxyl group of an acceptor molecule to form methyl ether derivatives and modifie basic backbone of secondary metabolits. OMTs could be classified as two groups depending on molecular weight. The first group is 23,000 to 27,000 Da and is represented by the caffeoyl coenzyme A OMTs (CCoAOMTs) which have been known to be involved in the biosynthesis of monolignol. The other is about 38,000 to 43,000 and use caffeic acid, flavonoids, sugars, and other scent compounds. A new O-methyltransferase, SOMT-9 was cloned from the tissues of Glycine max and it turnedout to encode a protein whose molecular weight is 27-kDa. SOMT-9 was expressed as a GST-fusion protein in E. coli and several substrates such as caffeic acid, narigenin, kampferarol, quercetin, and luteolin were tested. HPLC analysis of reaction product showed that SOMT-9 used flavonoids containing ortho hydroxyl groups such as luteolin and quercetin. The NMR result showed that SOMT-9 transfer a methyl group to 3 '-OH group of lueolin, which was determined to be the best substrate.

References

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