

## Regiospecific Multiple Methylation of Kaempferol using O-methyltransferases from Plants

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### Abstract

Flavonoids are typical plant secondary metabolites that constitute a relatively diverse family of phenolic molecules. These compounds are modified by genes such as O-methyltransferase(OMT) , monooxygenase(P450) and glycosyltransferase(GT). Combinatorial chemistry using above genes is common place today in chemical synthesis. We investigated the multiple expressions of ROMT-9 and SOMT-2. ROMT-9 and SOMT-2 are 3 and 4'-O-methyltransferase of kaempferol and was cloned from Rice and Soybean, respectively. Three genes were cloned to pET-21 vector system, respectively. In addition, ROMT-9 and SOMT-2 was independently cloned into one pET-21 vector and the resulting plasmid is named as RSOMT. Three constructs were expressed in *E. coli* BL21 to study multiple expression of RSOMT for kaempferol as substrate. HPLC analysis of reaction product from three construct having each gene showed one apparent product peak: 3-O-methylated kaempferol for ROMT-9 and 4'-O-methylated kaempferol . When RSOMT was expressed in BL21, three reaction products were detected, containing 3', 4'-O-dimethylated quercetin.

### References

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