

Molecular Characterization of UDP-glucosyltransferases from *Arabidopsis thaliana*

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Abstract

In secondary metabolites of plants, flavonoids are often converted to their glyco-conjugate by glycosyltransferase. The glycosyltransferase that use UDP-glucose as donor play role in modification of flavonoid properties. The flavonoid glucoside increase solubility and stability. In this study, we searched glycosyltransferase, AtGT-2 from *Arabidopsis thaliana* based on plant secondary product consensus sequence. The recombinant enzyme was expressed in *Escherichia coli* as a glutathione S-transferase fusion protein and tested several flavonoids. Analysis of reaction product with HPLC and comparison with authentic glucoside showed that AtGT 2 transfers a glucose moiety into several kinds of flavonoids. Positions of glycosylation depend on the structure of flavonoids. Flavonols such as kaempferol and quercetin were glycosylated at hydroxyl groups, C-7 and C-3. Flavone, eriodictyol and naringenin, produced 7-O-glycoside and flavone such as apigenin and luteolin produced 4'-O-glucoside in addition to 7-O-glucoside.

Reference

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