

## Characterization and Functional Analysis of Flavonol-3-O-glucosyltransferase from *Oryza sativa*

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### Abstract

Glycosylation is one of the outstanding reactions in plant species and glycosyltransferases are in charge of such reaction which leads its substrates to glycon. Generally, family1 glycosyltransferase convert small lipophilic compounds such as phenolics, terpenoids, cyanohydrins and alkaloids which are sugar acceptors into glycon by using uridine-diphosphate-activated sugar. It was reported that the main chemical roles of glycosylation process are stabilization, detoxification and solubilization of the substrates in plants.

Rice *UGT6*, one of the rice glycosyltransferases, from *Oryza sativa* was cloned by polymerase chain reaction and sequenced. It showed the homology with UDP-glucuronosyl and UDP-glycosyltransferase (UDPGT). Rice *UGT6* was expressed with pGEX vector in *Escherichia coli* BL21 DE3 strain and purified by using GST-tag affinity column. To determine substrate specificity, apigenin, daidzein, genistein, kaempferol, luteolin, naringenin and quercetin used as tentative substrate. Among them, kaempferol and quercetin, both of which contain 3-hydroxyl group, were converted into flavonoid-glucoside, indicating that the 3-hydroxyl group is the glycosylation site.

### References

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2. Lim et al, Arabidopsis glycosyltransferases as biocatalysis in fermentation for regioselective synthesis of diverse quercetin glucoside(2004), Biotechnology and bioengineering, Vol. 87(5), 623-631.