Glycosylation of Isoflavonoids with glycosyltransferase from rice

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Abstract

Glycosylation reaction that is mediated by glycosyltransferase and leads aglycons into glycons has main chemical roles which are solublization, stabilization and detoxification, all of which are involved in storage of secondary metabolites. One of the glycosyltransferase, *RGT45* from rice was cloned. It showed the homology with UDP-glucoronosyl and UDP-glycosyltransferase (UDPGT).

RGT45 was functionally expressed as glutathione *S*-transferase fusion protein in *Escherichia coli* and was purified. Ten different flavonoids were used as a tentative substrate. Reaction product was analyzed by TLC and HPLC. Among them, only genistein and daidzein were glycosylated by RGT45. To demonstrate which OH group is glycosylated by RGT45, RGT45 was reacted with biochanin A (4'-*O*-methyl genistein) and prunetin (7-*O*-methyl genistein) and found that biochanin A was glycosylated. Thus, RGT45 is isoflavone-7-*O*-glycosyltransferase.

References

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