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MOLECULAR COMPLEX OF QUERCETIN WITH HEDERASAPONIN C

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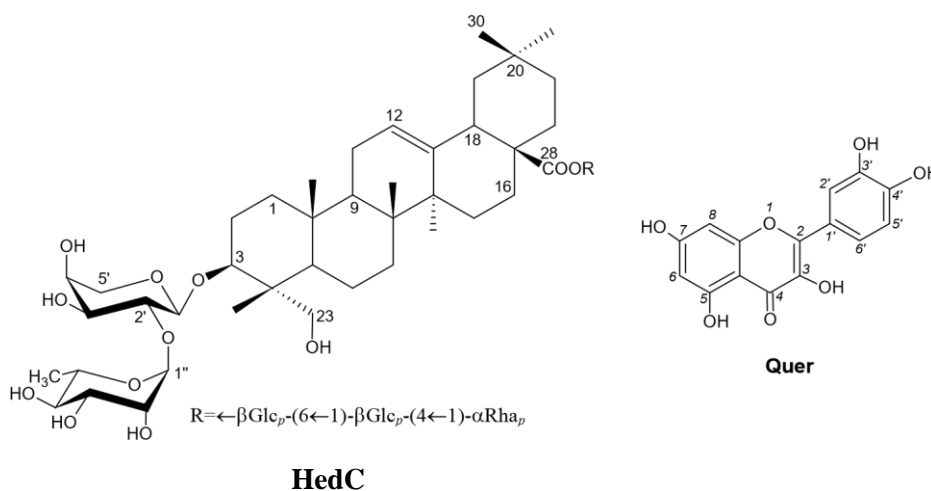
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Abstract. Quercetin (Quer) is one of the most famous flavonols¹. Quer was founded in different plants. Quer has P-vitamin activity and exhibits antioxidant, anti-inflammatory, antispasmodic, antisclerotic, diuretic, and antitumor effects.^{1,2}

Previously, we have studied the molecular complex of Quer with triterpene glycoside glycyram (monoammonium salt of glycyrrhizic acid)³. Triterpene glycosides from licorice and ivy are one of the most affordable saponins. However, molecular complexes of Quer with ivy triterpene glycosides are not described. Triterpene glycoside hederasaponin C (hederacoside C, hederagenin 3-O- α -L-rhamnopyranosyl-(1 \rightarrow 2)-O- α -L-arabinopyranosyl-28-O- α -L-rhamnopyranosyl-(1 \rightarrow 4)-O- β -D-glucopyranosyl-(1 \rightarrow 6)-O- β -D-glucopyranoside, HedC) was discovered in the most species of the ivy genus *Hedera* L. (Araliaceae), in which it is the dominant saponin.

The Quer–HedC complex composition was determined by the method of isomolar series at 256 and 370 nm. This method gave a molar ratio ≈ 2.0 , which corresponded to a 1 : 2 complex of Quer with HedC, respectively (in 2 : 8 mixture of 96 % EtOH and aqueous phosphate buffer with pH 7.2 (v/v)).

The molecular complexation of Quer with HedC was studied by ATR FT-IR spectroscopy. It was shown that hydrogen bonds are formed between OH groups of complex components, and by C=O group of Quer and carbohydrate OH groups of HedC: (H)O \cdots H–O and C=O_{Quer} \cdots H–O_{HedC}.



References

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