PR-116

NEW MOLECULAR COMPLEX OF AMMONIUM GLYCYRRHIZATE WITH RUTIN

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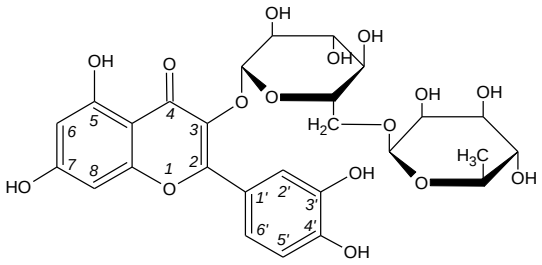
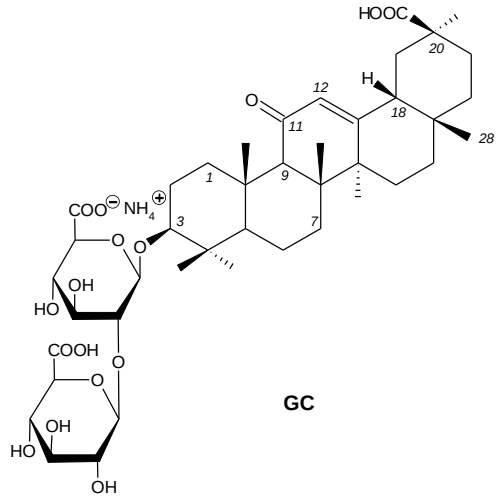
Abstract. Rutin (Rut) is one of the most famous flavonols and glycosides.[1] Rut was founded in different plants. Rut has P-vitamin activity and exhibits antimicrobial, antioxidant, anti-inflammatory, antidiabetic, antispasmodic, antisclerotic, diuretic, and anticancer effects. The therapeutic effect of Rut is limited by its bioavailability[1]. It has been established that the solubility and bioavailability of bioactive compounds can be significantly increased due to their molecular complexation with triterpene glycosides.[2] Glycyrrhizic acid (GA) and its monoammonium salt (ammonium glycyrrhizate, glycyram, GC) are widely used as complexing agents[2].



Rut



GC

New 1 : 1 molecular complex of GC with Rut was obtained in aqueous ethanol. A joint molecular complex of triterpene and flavonoid glycosides has been obtained for the first time. The stability constant of $(9.7 \pm 0.2) \cdot 10^4$ $(mol/L)^{-1}$ was calculated for the complex based on isomolar curves. The complexation was studied by UV- and ATR IR-Fourier spectroscopy, and method of isomolar series. The absorption maximum of the solutions decreases from 258 to 252 nm (hypsochromic shift).

The hydrogen bonds ($C{=}O_{GC}\ldots H{-}O_{Rut}$ and $C{=}O_{Rut}\ldots H{-}O_{GC}$) and hydrophobic interactions are formed in the molecular complex. A preliminary assessment of the antioxidant activity of the complex has been made.

References

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This study was carried out on the experimental equipment of the Sevastopol State University (project PR/807-42/2017).