

순무(*Brassica rapa* ssp. *campestris*) 뿌리로부터 alkyl glycoside 화합물의 분리 및 구조동정
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Isolation and identification of alkyl glycoside compounds from the roots of *Brassica rapa*
ssp. *campestris*

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Objectives

B. rapa is a conical, deep purple, edible root vegetable commonly known as the turnip. It is characterized by a particular bitter and pungent taste, which differentiates them from other *Brassica* vegetables, such as cabbage, broccoli, and cauliflower. It has been manufactured as various food products, including Korean traditional food Kim Chi (김치) in Korea. To consume *B. rapa* is good for human health and reduction of the risk of suffering certain type of chronic diseases including cardiovascular problems and different types of cancers. This association is often attributed to their phytochemicals, such as glucosinolates and phenolic compounds that induce a variety of physiological functions. This research was carried out in search of what exactly the phytochemicals are present in the roots of *B. rapa*.

Materials and Methods

○ Materials

The roots of *B. rapa* were offered from Ganghwa Agricultural R&D Center (Incheon). ¹H-NMR (400 MHz) and ¹³C-NMR (100 MHz) spectra were recorded on a Varian Unity Inova AS-400 FT-NMR spectrometer (California, USA).

○ Methods

The roots of *B. rapa* (77.1 kg) were extracted with 95% aqueous MeOH, and the concentrated extract was partitioned with EtOAc, *n*-BuOH and H₂O, respectively. From the *n*-BuOH fraction, four compounds were isolated through the repeated silica gel, octadecyl silica gel (ODS), and Sephadex LH-20 column chromatographies.

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Results

From the results of spectroscopic data including NMR, MS and IR, the chemical structures of the compounds were determined as ethyl glycoside, *n*-butyl- β -D-fructopyranoside, ethanone glycoside, and *n*-pentyl- β -D-fructopyranoside. Ethanone glycoside is a new compound. Ethyl glycoside, *n*-butyl- β -D-fructopyranoside, and *n*-pentyl- β -D-fructopyranoside have been isolated from this plant for the first time. *n*-butyl β -D-fructopyranoside and *n*-pentyl β -D-fructopyranoside are specific inhibitors of IgE-antibody formation.

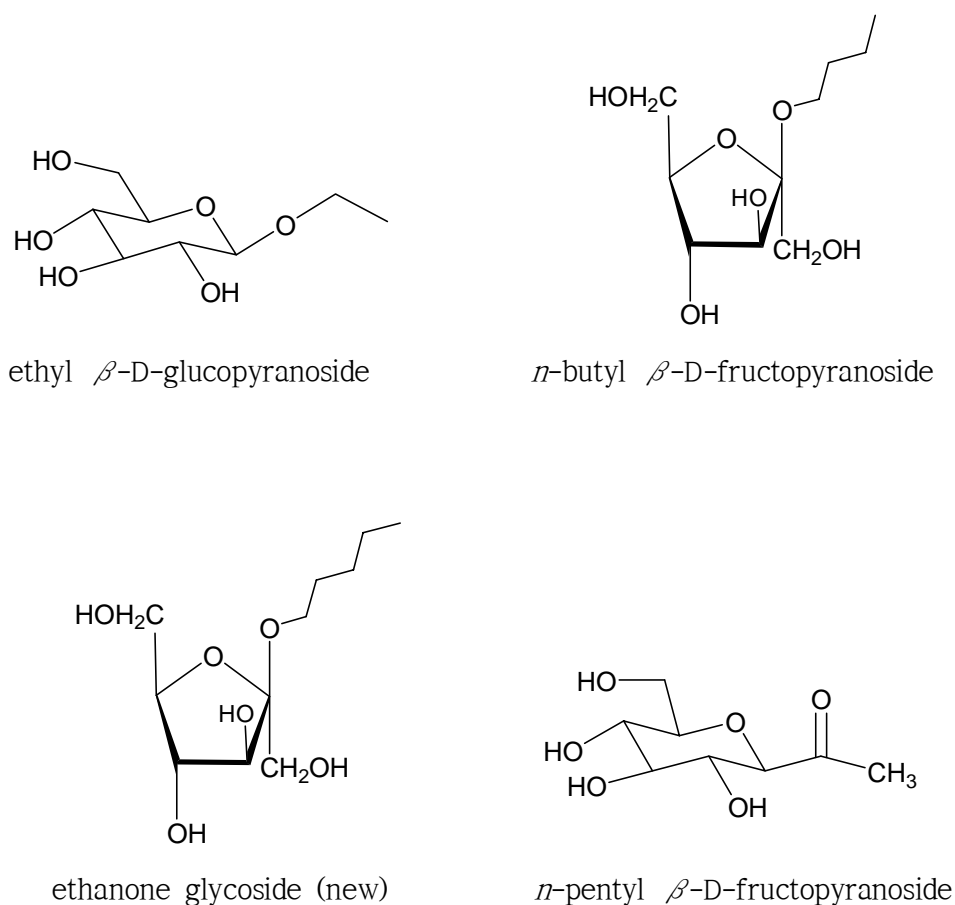


Fig. 1. Alkyl glycosides from the roots of *B. rapa*.