

고추(*Capsicum annuum* L.) 열매로부터 신규 화합물의 분리 및 동정
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A New Lignan Glycoside from the Fruit of Red Pepper (*Capsicum annuum* L.)

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Objectives

Red pepper is a biannual herbaceous plant, among whose several varieties of the plant, *Capsicum annum*, *C. frutescens*, *C. chacoense*, and *C. chinense* have been mainly cultivated as an important vegetable in the world. The plant products are world-widely produced and exported in excess of 18,000 Mt yearly. The fruits of the plants have been well known as a very important seasonings in a food products as well as to have several pharmacological activities such as cancer chemoprevention, neurological, anti-oxidative, anti-inflammation, and hypercholesterolemia effects, and so on. Additionally it has been used for not only self-defense weapon spray using its pungency and heat but also pest repellent and synergist in insecticides. Though more than 400 compounds have been isolated or analyzed from *Capsicum* species, so far, including capsaicins, capsanthins and diterpene glycosides, very little is known about lignan compounds.

Materials and Methods

○ Materials

The fruit of *Capsicum annuum* L. were purchased at the market in Eum-Seong, Korea (KHU061027). Optical rotation was recorded on a JASCO P-1010 digital polarimeter (Tokyo, Japan). UV spectra were measured on a Shimadzu UV-1601 (Kyoto, Japan). The IR spectrum was obtained with a Perkin Elmer Spectrum One FT-IR spectrometer, CaF₂ window in MeOH (Buckinghamshire, England). FABMS data were recorded on a JEOL JMS-700 (Tokyo, Japan). ¹H-NMR (400 MHz), ¹³C-NMR (100 MHz) and 2D-NMR spectra were recorded on a Varian Unity Inova AS-400 FT-NMR spectrometer (California, USA).

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○ Methods

The dried powder of the fruit of *C. annuum* (18 kg) were extracted with 80% aqueous MeOH at room temperature. The extracts were partitioned with water, EtOAc and *n*-BuOH, successively. Repeated column chromatography using silica gel, octadecyl silica gel (ODS) and Sephadex LH-20 for EtOAc fraction led to isolation of a new lignan glycoside

Results

From the results of spectroscopic data including EIMS, HRFABMS, UV, IR, ^1H and ^{13}C -NMR, DEPT and 2D-NMR (COSY, HSQC, HMBC), the chemical structure of the new lignan glycoside was determined as (8*R*)-isodehydrodiconiferyl alcohol-4'-*O*-(6''-vanilloyl)- β -D-glucopyranoside, named vanilloylicariside.

Figure 1. Chemical structure of vanilloylicariside isolated from the fruit of *Capsicum annuum* L.

