

### III-18

백모근(*Imperata cylindrica*)로부터 신규 Lignan 화합물의 분리 및 구조동정  
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#### A New Lignan Glycoside from the Rhizomes of *Imperata cylindrica*

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#### Objectives

*Imperata cylindrica* (Gramineae) is an aggressive, rhizomatous, perennial grass that is distributed throughout the tropical and subtropical regions of the world. The rhizomes of this plant has been used for the treatment of diuretic, anti-inflammatory and antipyretic agent in Korean traditional herbal medicine. Also, neuroprotective compounds from MeOH-extracts has been reported. Previous studies on the rhizomes of *I. cylindrica* have resulted in the isolation of various compounds such as, campesterol, arundoin, cylindrin, cylindol, cylindrene, and scopolin. To date, however, there has been no report related to sucrose diester of a substituted  $\beta$ -truxinic acid from this plant.

#### Materials and Methods

##### ○ Materials

The rhizomes of *Imperata cylindrica* were purchased at Kyungdongmart, an herbal drug store in Seoul, Korea (KHU050730). 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, CaF<sub>2</sub> window in MeOH (Buckinghamshire, England). FABMS data were recorded on a JEOL JMS-700 (Tokyo, Japan). <sup>1</sup>H-NMR (400 MHz), <sup>13</sup>C-NMR (100 MHz) and 2D-NMR spectra were recorded on a Varian Unity Inova AS-400 FT-NMR spectrometer (California, USA). Pyridine-*d*<sub>5</sub> with TMS as internal standard was purchased from Sigma (St. Louis, MO, USA).

##### ○ Methods

Dried rhizomes of *I. cylindrica* (1.5 kg) were extracted with 80% aqueous MeOH at room temperature. The extracts were partitioned with water, EtOAc and *n*-BuOH, successively. The concentrated *n*-BuOH extract was applied to the Diaion-HP20 column with a gradient eluting of H<sub>2</sub>O-MeOH and the obtained fractions were checked by TLC. The 80% MeOH fraction was applied to the silica gel column chromatography and eluted with CHCl<sub>3</sub>-MeOH-H<sub>2</sub>O resulting in six fractions

monitored by TLC. Subfraction 3 was applied to the ODS column chromatography eluted with MeOH-H<sub>2</sub>O 3:1, yielding compound **1** [33 mg, Ve/Vt 0.53-0.60, TLC (RP-18 F254) R<sub>f</sub> 0.55 in MeOH-H<sub>2</sub>O = 5:1].

## Results

A new lignan glycoside,  $\beta$ -*D*-6-acetyl-1- $\beta$ -[1,3-(4,4'-dihydroxy-3,3'-dimethoxy-*b*-truxinyl)fructofuranosyl]-*a*-*D*-glucopyranoside, named impecyloside, was isolated from the rhizomes of *Imperata cylindrica*. The structure of compound was determined by spectroscopic data including FABMS, UV, IR, <sup>1</sup>H and <sup>13</sup>C-NMR (DEPT) and 2D NMR (COSY, HSQC, HMBC).

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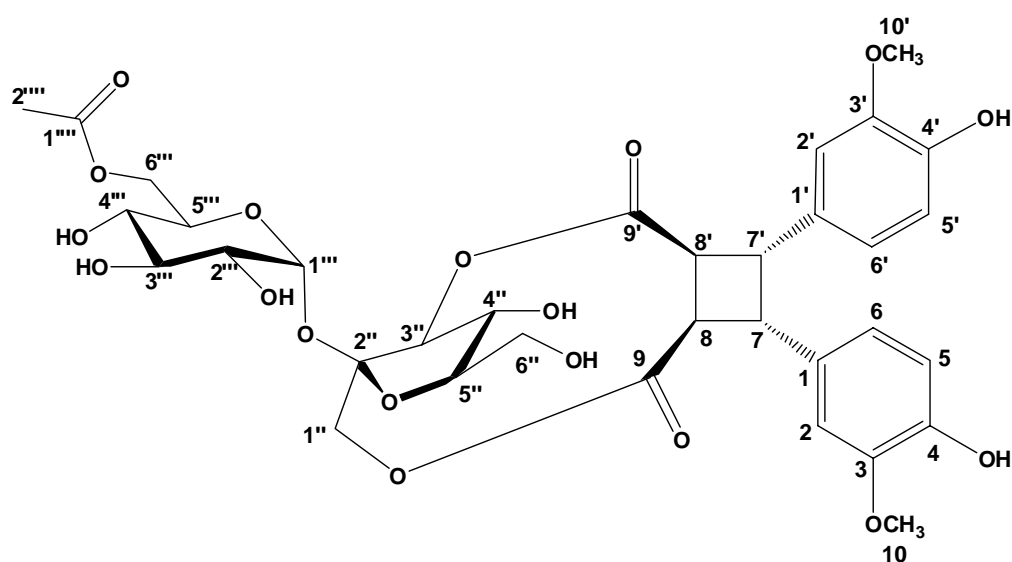


Figure 1. Chemical structure of impecyloside.