

## Comparison of Phenolic Compounds Contents in Cereal Grains

Department of Applied Life Science, Konkuk University

Ye-Ji Lee, Sun-Jin Kim, Jung-woong Kwon, Sung-Hyun Song, Soo-Jung Yong, Mi-So Jang, Suk-Jun Jung, Ha-Jung Kim, Ill-Min Chung\*

### 잡곡에서의 페놀성 물질 비교

건국대학교 : 이예지, 김선진, 권정웅, 송성현, 용수정, 장미소, 정석준, 김하정, 정일민

#### Introduction

Cereal grains are a rich source of vitamins, minerals, and phytochemicals, which include phenolic compounds. Phenolic compounds have antioxidant properties and can protect against degenerative diseases in which reactive oxygen species are involved.

#### Objectives

The purpose of this research was to analyze the phenolic compounds contents in millet, sorghum and panicum using High Performance Liquid Chromatography.

#### Materials and Methods

##### ○ Material

Total 60 species cereal grains were used in this experiment.

5 varieties(Moktak, native, Whanggeum, Whanggeumchal, Hwenchal) sorghums, 5 millets and 5 panicums were cultivated and harvested from four site(Bonghwa, Yeongyang, Milyang and Gijang).

##### ○ Methods

- ① 2g of smahed sample was extracted in 10mL of ACN and 2mL 0.1N HCl
- ② Shaked for 2hr at room temperature
- ③ Filtered through No.42 Whatman filter paper
- ④ Concentrated by vacuum evaporator
- ⑤ The residues were redissolved with 10mL of 80% MeOH
- ⑥ Filtered through 0.45 $\mu$ m Syringe filter
- ⑦ Analyzed by HPLC

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Corresponding author 정일민 E-mail : imcim@konkuk.ac.kr Tel : 02-450-3730

○ Conditions for analysis by HPLC

item	conditions
HPLC	Shimadzu Instrument Co. LTD, Japan
Detector	UV detector model SPD-M10A VP
Running time	60min
Column	Y M C - P a c k ODS-AM-303(5 $\mu$ m,4.6mmx250mm I.D)
Flow rate	1mL/min
Sample injection volume	20 $\mu$ l
Wavelength of Photo Diode Array detector (PDA)	280nm

**Results and Discussion**

This experiment showed sorghum contained the highest amount of phenolic compounds and panicum contained the lowest amount of phenolic compounds among the cereal grains(sorghum, millet, panicum). Especially sorghum has the highest amount of flavonols Ct concentrations.

This study suggests that variation of phenolic compounds exist among sorghum, millet and panicum varieties.

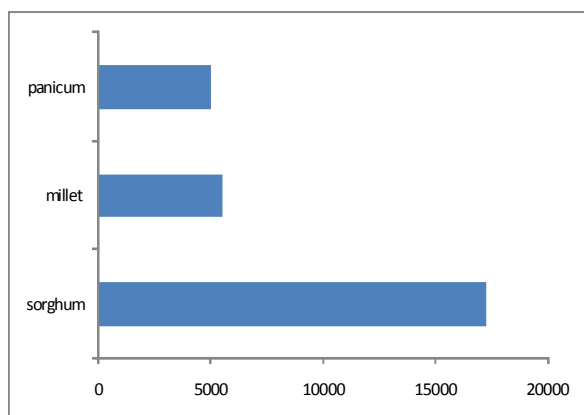


Figure1. Comparison of total Phenolic Compounds in Cereal grains.

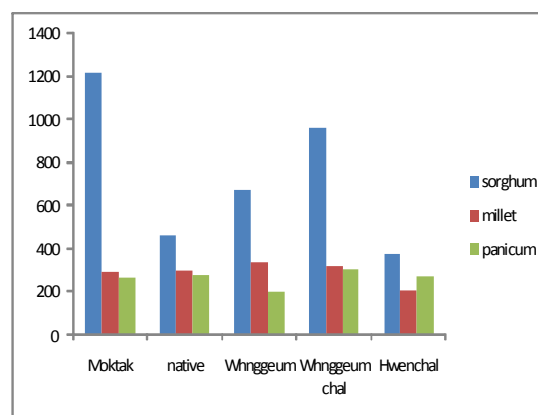


Figure2. Variation of phenolic compounds among sorghum, millet and panicum varieties.

Total phenolic compounds concentrations of sorghums were higher than those of millet and panicum. These difference could be attributed to the genetic differences among varieties, because all varieties were grown under same environmental condition.