

## PC-9

**Comparative Metabolomic Study in Selected Rice (*Oryza sativa* L.) Core Collection: A Preliminary Report**Won-Ryeol Kim<sup>1</sup>, Ji-Ye Kim<sup>1</sup>, Hee-Sung Moon<sup>1</sup>, Seung-Hyun Kim<sup>1</sup>, Ill-Min Chung<sup>1\*</sup><sup>1</sup>Department of Crop Science, Konkuk University, Seoul 05029, Korea.**[Introduction]**

Rice (*Oryza sativa* L.) is one of the staple crop in the world, supplying 20% of the energy consumed by humans and containing various nutrients. Recently, interest in rice containing functional substances has been increasing with consumers' interest in health. Therefore, this study conducted a targeted metabolomic analysis by LC-ESI-MS/MS in multiple reactions monitoring mode targeting 55 phenolic metabolites and two amino acid precursors of candidate samples.

**[Materials and Methods]**

A total of 250 rice samples in the rice germplasms were divided into a colored (black, red) and non-colored rice (brown). Then, phenolic compounds were extracted along the method of acidic extraction and analyzed by LC-ESI-MS/MS. The optimized LC-ESI-MS/MS conditions were as follows: reversed-phase C18 column (150 × 4.6mm, 5μm), column temperature 25°C, the flow rate 500 μL/min, mobile phase 0.1% formic acid in water and 0.1% formic acid in acetonitrile gradient, curtain gas 50psi, collision gas 2psi, ion spray voltage -4400V, GS1 40psi, GS2 50psi and temperature 500°C. According to the present method and conditions, the limit of detection, limit of quantification, and matrix effect were also evaluated.

**[Results and Discussion]**

In this study, total 17 phenolics were quantitated; including 8 phenolic acids (i.e. salicylic acid, p-coumaric acid, ferulic acid, etc), 7 flavonoids (i.e. peonidin 3-o-β glucoside, cyanidin 3-o-β glucoside, (+)-catechin, etc), 1 stilbenoid (polydatin), and vanillin. The black rice samples were abundant in vanillic acid, malvidin chloride, peonidin 3-o-β glucoside chloride, cyanidin 3-o-β glucopyranoside, and red rice samples had catechin and homogonic acid as major phenolics. Whereas, the non-colored rice samples had major phenolic like vanillin. And the amounts of phenolics detected were statistically significant between the colored and the non-colored rice samples (P <0.05). Our preliminary metabolic profiling can be useful for functional reinforced rice variety breeding as basic information.

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\*Corresponding author: E-mail, imcim@konkuk.ac.kr Tel. +82-02-450-3807