

PC-009

**Analysis of Phenolic Metabolites in Selected Rice (*Oryza sativa* L.) Genetic Resources by LC-ESI-MS/MS**Chang Kwon<sup>1</sup>, Yun-ju Kim<sup>1</sup>, Seung-Hyun Kim<sup>1</sup>, Ill-Min Chung<sup>1\*</sup><sup>1</sup>Department of Crop Science, College of Sanghuh Life Science, Konkuk University, Seoul 05029, Korea**[Introduction]**

Rice (*Oryza sativa* L.) is one of the staple crop in the world, thousands of cultivars are grown in more than 100 countries. Traditionally breeding new varieties have contributed to enriched yields and enhanced resistance. Recently, many attempts have been made to develop better rice varieties, rich in functional nutrients having antioxidant activities. This study aimed to profile the quantitative composition of phenolic compounds in 804 selected rice genetic resources to construct an integrative omics database for development of new rice breeding system. The analysis was conducted by LC-ESI-MS/MS in multiple reactions monitoring mode targeting 55 phenolic compounds and two amino acid as phenolic precursor metabolites.

**[Materials and Methods]**

The optimized LC-ESI-MS/MS conditions were as follows: reversed-phase C18 column (150 × 4.6mm, 5μm, Thermo Synchronis), 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 22 phenolic compounds were quantitated including eleven phenolic acids such as salicylic acid, *p*-coumaric acid, ferulic acid and caffeic acid, ten flavonoids such as peonidin 3-*O*-β glucoside chloride, cyanidin 3-*O*-β glucoside chloride, quercetin and (+),-catechin, a stilbenoid such as polydatin and an amino acid such as L-phenylalanine. The sum of phenolic contents ranged from 0.03μg/g to 1,280μg/g. The mean of phenolic contents sum was 16.1μg/g and standard deviation was 72.0μg/g. In addition the results of the analysis were divided into three groups according to the some of phenolic contents, top 10% group was distinguishable from middle 10% and bottom 10% group (p<0.05).

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