

## Quality and Physicochemical Characteristics of Korean Mung-bean Cultivars Grown in Different Seeding Periods

Koan Sik Woo<sup>1\*</sup>, Hyun-Joo Kim<sup>1</sup>, Ji Hae Lee<sup>1</sup>, Byong Won Lee<sup>1</sup>, Yu Young Lee<sup>1</sup>, Yong Hee Jeon<sup>1</sup>,  
Byoung Kyu Lee<sup>1</sup>

<sup>1</sup>Department of Central Area Crop Science, National Institute of Crop Science, RDA, Suwon 16429, Korea

### [Introduction]

Legumes are an important raw material for a balanced human diet as they provide an excellent carbohydrate source, high levels of proteins, and various vitamins and minerals. Legumes are known to have many physiological effects such as reducing blood glucose and cholesterol levels, and prevention of metabolic diseases, including diabetes, colon cancer, and hyperlipidemia. For this reason, the legumes are increasingly of interest to health conscious consumers. Mung-bean (*Phaseolus radiatus* L.) is a useful food source, particularly in Asia, and it is consumed in various forms; for example, as a food, boiled or cooked with vegetables or meat, and as flour pastes (juk) or starch gels (muk). The mung-bean starches have generally higher amylose content as compared to cereal and tuber starches, and thus it is easy to make starch gels and noodles.

### [Materials and Methods]

The proximate compositions, quality and physicochemical characteristics of three mung-bean cultivars grown in two different seedling periods were evaluated. We used mung-beans of the cultivars cv. Dahyeon, Sohyeon and Jangan, and the two different seeding periods were seeded on 5 June and 5 July, respectively.

### [Results and Discussions]

The proximate compositions and chromaticity of mung-bean showed significant difference according to three cultivars and two different seeding periods. Moisture content and yellowness increased during 5 July cultivation compared to 5 June cultivation, while crude ash, fat contents and redness decreased. Water solubility index was significantly different among cultivars and two different seeding periods. Total polyphenol content of mung-bean showed significant difference according to three cultivars and two different seeding periods. Total polyphenol content of cultivars Dahyeon and Sohyeon decreased during 5 July cultivation compared to 5 June cultivation, while cultivar Jangan increased. Total flavonoid content of cultivars Dahyeon and Jangan decreased during 5 July cultivation compared to 5 June cultivation, and cultivar Sohyeon not showed significant difference. Radical scavenging activity of three mung-bean cultivars showed significant difference according to cultivars. DPPH radical scavenging activity of 5 June and 5 July cultivation on the cultivar Jangan was 6.16 and 7.14 mg TE/g, respectively, and other two cultivars not showed significant difference according to different seeding periods. ABTS radical scavenging activity of cultivars Sohyeon and Jangan increased during 5 July cultivation compared to 5 June cultivation, while cultivar Dahyeon not showed significant difference according to different seeding periods.

### [Acknowledgements]

This work was supported by a grant from the R&D project (No. PJ01183301) of the National Institute of Crop Science, Rural Development Administration, Republic of Korea.

\*Corresponding author: Tel. +82-31-695-0616, E-mail, weeks@korea.kr