

PC-006

Isoflavones and Soyasaponins Profiling in Korean Soybean [*Glycine max* (L.) Merr.] Core Collection

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[Introduction]

A core collection is a subset that represents genetic diversity of the total collection. Soybeans are used worldwide as food and as a healthy ingredient. In addition, soybeans contain many secondary metabolites such as isoflavones, soyasaponins and tocopherols. Isoflavones and soyasaponins are known to exhibit biological activities such as anti-oxidant, anti-cancer, anti-diabetic, and bone health. Therefore, this study aimed to elucidate the contents of isoflavone and soyasaponin of seed in 382 Korean soybean core collection.

[Materials and Methods]

Korean soybean core collection of 382 accessions was grown on the experimental field at the National Institute of Crop Science, Jeonbuk, Korea, and harvested in 2018. Isoflavones and soyasaponins analysis were conducted using UHPLC-Orbitrap-MS equipped with a HALO C18 (2.7 μm , 2.1 mm \times 100 mm) column. All statistical analyses were performed using the SAS Enterprise Guide 7.1.

[Results and Discussion]

The isoflavone content in the 382 accessions ranged from 81.7 to 821.7 mg/100 g. Among isoflavones, β -glycoside (daidzin and genistin) and malonyl-glycoside (malonyl-daidzin and malonyl-genistin) isoflavones were the major compound. The soyasaponin content in the 382 accessions ranged from 29.2 to 225.7 mg/100 g. The content of soyasaponins Ab and Aa was high in the total soyasaponin content and the soyasaponin phenotype was largely divided into Aa and Ab. The isoflavone and soyasaponin content depended on soybean accessions. In conclusion, our results suggest that isoflavones and soyasaponins profiling of Korean soybean core collection is helpful for developing functional materials and effective information for breeding of high functional soybean.

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