

The effect of seeding and harvesting time on the variation of oligosaccharide composition in black soybean [*Glycine max* Merr (L.)]

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[Introduction]

Black soybean which is a type of soybean with black-colored seed coat is usually used to cook with rice in Korea. Considering its usage and cooking quality, it is desirable to have high sugar content in seed. Only sucrose, among the oligosaccharide components, is good for human digestion contrary to others such as raffinose and stachyose. The objective of this study was to find optimum seeding and harvesting time for idealized sugar composition and content containing high sucrose, low stachyose and raffinose content in black soybean.

[Material and method]

Four black soybean cultivars were planted at three times every two weeks from June 10 and harvested at four times every 10 days from 50 days after flowering. Oligosaccharide content was analyzed by HPLC.

[Result and discussion]

The contents of sucrose, stachyose and raffinose content ranged 4.1~7, 5~6.1 and 0.78~0.92 (mg/g), respectively. The total sugar content (TS, mg/g) and the ratio of sucrose content of total sugar (SC, %) were significantly different among cultivars; ‘*Ilpumgeomjeongkong2*’ (14.7, 50) was highest in sugar content and ‘*Wonheug*’ was lowest (11.1, 38.6). Regardless of soybean cultivars, the highest TS was found at early planting (June 10) whereas the highest SC was found at late planting (July 10). Both TS and SC were highest for seeds harvested at 60~70 days after flowering. There was no significant difference in sucrose content by seeding time. However, the stachyose content was higher in early planting and the raffinose content was higher in late planting. For the harvesting time, the highest content of sucrose was found at 60~70 days after flowering, and the contents of stachyose and raffinose were higher at 50~60 days after flowering. These results indicated that it was possible to manage the contents of sucrose, stachyose and raffinose in black soybean seeds by the control of seeding and harvesting time.

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