

OD7. Variation in isoflavone contents of soybean (*Glycine max* L.) cultivars with location and storage duration

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Objectives

This study was undertaken to evaluate the variation of isoflavone contents of 15 Korean soybean cultivars by different genotypes, crop years and sites, and the relative importance of their interactions. It also examined the changes in isoflavone distributions and contents over different storage periods.

Materials And Methods

◆ The 15 soybean cultivars, including Taekwang, were grown at three Korean locations: Seoul, Suwon, and Kyongsan in 1998, 1999, and 2000. The analysis of isoflavones was carried out in each crop year and after stored for 3 years.

◆ Analysis of Isoflavone contents by HPLC

- Mobile phase : solvent A (0.1% glacial acetic acid in distilled water), solvent B (0.1% glacial acetic acid in ACN) - Injection : 20 μ L of the sample - Solvent flow rate : 1 mL/min
- Wavelength of the UV detector : 254 nm - Column :YMC AM-303 (ODS, 250 X 4.6 mm i.d.)

Results And Discussion

There was significant differences among the year, location, and variety interaction for all of the 9 isoflavones except 6"-O-malonylglycitin in 1998 and glycitin in 2000. Total isoflavone contents of soybeans stored for one year were only slightly higher than those of soybeans stored for two or three years. However, the concentration of malonylglucoside decreased markedly in soybeans stored for two or three years.

Table 1. Interactions between locations and cultivars for total and individual isoflavone contents of 15 soybean cultivars across three locations during 1998, 1999, and 2000.

Isoflavone	Y	1998			1999			2000			Y×L×C
		L	C	L×C	L	C	L×C	L	C	L×C	
Daidzin	**	**	**	**	**	**	**	**	**	**	**
Glycitin	**	**	**	**	**	**	**	NS	**	*	**
Genistin	**	**	**	**	**	**	**	**	**	**	**
6"-O-malonyldaidzin	**	**	**	**	**	**	**	**	**	**	**
6"-O-malonylglycitin	**	NS	**	**	**	**	**	**	**	**	**
6"-O-malonylgenistin	**	**	**	**	**	**	**	**	**	**	**
Daidzein	**	**	**	**	**	**	**	**	**	**	**
Glycitein	**	**	**	**	**	**	**	**	**	**	**
Genistein	**	**	**	**	**	**	**	**	**	**	**
Total isoflavone	**	**	**	**	**	**	**	**	**	**	**

Y: year; L: location; C: cultivar; NS: not significant at the 0.05 probability level; *, **: Significant at the 0.05 and the 0.01 probability levels, respectively.

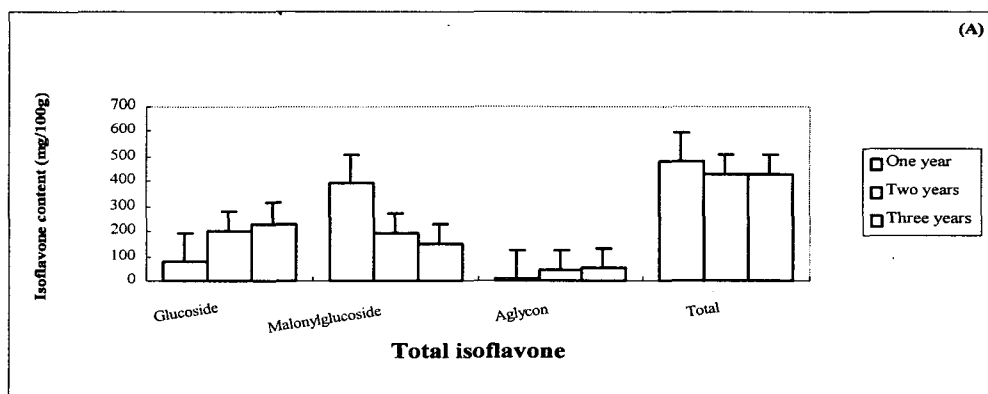


Figure 1. Changes in isoflavone composition and contents of soybean cultivars during storage at room temperature

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