Details of Technology

Name of Technology	Elucidation of genetic and chemical characteristics of saponins in soybean seeds	Food
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Key words	soybean, saponins, functional components, health, taste	

What kind of technology is this?

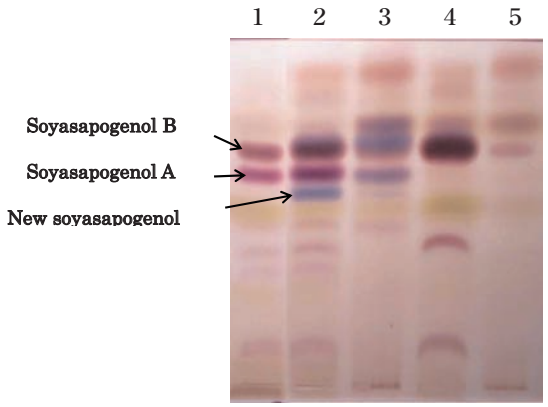
Outline

This is a basic research for developing a new variety of soybean with improved food functionality and taste.

【Research output contents】

Soybean saponin is a general term for a group of 30 or more saponins and it has been reported that taste and health functionality depend on the chemical structure of each saponin. Therefore, to find out mutant soybeans producing novel saponins or having different saponin compositions and to transferred those genes into the cultivated soybeans will contribute to produce a new variety of soybean with largely improved taste and functionality.

Until now, we have found naturally occurred mutant soybeans with various saponin compositions. These research achievements have contributed to the development of a soybean variety "Kinusayaka" (cultured by National Agricultural Research Center for Tohoku Region) with good taste and without unpleasant taste.



1 : Normal soybean (hypocotyl)
2 : Mutant soybean A (hypocotyl)
3 : Mutant soybean A (cotyledon)
4 : Mutant soybean B (hypocotyl)
5 : Mutant soybean B (cotyledon)

Fig. Analytical results of hydrolysates of saponin components extracted from each part (1 to 5) of soybean seed by silica gel thin layer chromatography (TLC)

What are its applications?

The technology can help the prevention and improvement of lifestyle-related diseases and the mutated soybeans can be utilized for the materials of good tasting soy milk, tofu, natto and edamame.

Related patents	Japanese Patent Laid-Open No. 2003-274885 (P2003-274885A)
Related materials	1. Soy & Health Conference 2006、Germany (2006). 2. 5th International Crop Science Congress、South Korea (2008) 3. 236th ACS National Meeting、Philadelphia、PA、USA (2008)

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