ANALYSIS OF SOY-OLIGOSACCHARIDES CONTENT OF THE TWENTY PRODUCT COMMERCIAL SOY-BASED POWDER DRINKS

Lukman Saifatah, Didah Nur Faridah, and Nuri Andarwulan.
Department of Food Science and Technology, Faculty of Agricultural Technology.
Bogor Agricultural University, IPB Darmaga Campus, PO Box 220, Bogor, West Java, Indonesia.
Phone: +6285283760523, email: lukmansaifatah@yahoo.com

ABSTRACT

Soy products such as powder drinks have superior nutritional characteristics in terms of high protein contents and serve as a low cost substitute to dairy milk and as a nutritive supplement for the lactose intolerance population and the allergy patient. Soybean, not only contain protein, but also oligosaccharides. Soy-oligosaccharides include raffinose and stachyose have been credited with many health-promoting function. This research’s aim was to analyze soy-oligosaccharides contents of the twenty commercial soy-based powder drink with HPLC method. The compounds were well separated on a Hypersil Carbohydrate Analysis column by using mobile phase consisting of acetonitrile and water (75:25 v/v at a flow rate of 1.5 ml/min). Twenty commercial products were sampled and grouped by consumer age, which are 3 year old above (adult), 1-3 year, and 0-1 year. Samples intended for 3 years old above consumers were further divided again into sample for special group of consumers and for ordinary consumers. Samples for consumers 3 years old above (ordinary consumer) had fructose (1.87-15.32 mg/g), glucose (2.26-17.28 mg/g), and sucrose (20.12-137.10 mg/g). Samples for special group of consumers had fructose (0.53-69.16 mg/g), glucose (0.74-36.35 mg/g), and sucrose (5.86-15.44 mg/g). Samples for 0-1 year, had glucose (26.44-38.34 mg/g) and sucrose (6.89-89.76 mg/g) and samples for 1-3 years had glucose (33.90-38.70 mg/g) and sucrose (91.37-91.78 mg/g).

The results of analyze oligosaccharides showed that samples for consumers 3 years old above (ordinary consumer) had oligosaccharides content higher than samples for special group of consumers, indeed oligosaccharides content in the samples for 0-1 year and 1-3 years were not detected. Oligosaccharides content in the samples for consumers 3 years old above (ordinary consumer) were 20.99-27.44 mg/g (about 4.44-6.80 mg/g raffinose and 16.55-21.59 mg/g stachyose approximately) and oligosaccharides content in the samples for special group of consumers were 0.66-1.98 mg/g (about 0.23-6.32 mg/g raffinose and 0.68 mg/g stachyose approximately). This research also showed that ingredients affect the oligosaccharides content of the samples. Samples which soybean had higher oligosaccharides content than the samples which soy protein isolate as the raw material.

Keywords: soy-based powder drinks, raffinose, stachyose, HPLC