

Chayada Laothong 2012: Development of High GABA Soy Drink Powder Product.
Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial
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Professor Walairat Chantarapanon, Ph.D. 137 pages.

This research aimed to develop high GABA product from germinated soy bean. To study the appropriate germination time of soy bean which gave the highest GABA, Soy beans were soaked in clean water at room temperature for 0, 3, 6, 9, 12 15 and 18 hours. It was found that soaking for 3 hours gave the highest GABA concentration 89.04 mg/100 g and were statistically significant ($P \leq 0.05$) from other samples. Thus 3 hours soaking time was the most appropriate time. Temperature and time for drying germinated soy bean were studied by drying germinated soy bean in tray dryer at 60 and 70 °C until the moisture content was less than 8%. It was found that drying at 60 °C for 7 hours and then grinding into flour gave higher GABA concentration (93.36 mg/100 g) than drying at 70 °C for 5 hours ($P \leq 0.05$). The obtained germinated soy bean flour had color L*, a* and b* 80.56, 2.14 and 24.81, respectively, a_w 0.52, GABA 93.36 mg/100g, moisture content 7.17%, fat content 19.09%, protein 36.02%, crude fiber 3.74%, ash 5.40%, carbohydrate 28.57%, total plate count <10 cfu/g est. and yeast and molds <10 cfu/g est. The optimum formulation of high GABA soy drink powder product consisted of germinated soy bean flour 35%, sugar 32%, non-dairy creamed 22% and milk powder 11% and had color L*, a* and b* 85.44, 0.59 and 19.55, respectively, a_w 0.40, 73.18% of water solubility index, 2.97% of water absorption index, 2.89% of moisture content, GABA 43.02 mg/100g, moisture content 2.89%, fat content 3.72%, protein 34.66%, crude fiber 1.81%, ash 2.47%, carbohydrate 54.45%, total plate count <10 cfu/g est. and yeast and molds <10 cfu/g est. Serving size was 37.5 g which gave the GABA concentration 16.14 mg with production cost (raw materials) 3.62 baht. Consumer testing indicated that the overall liking of developed product was “like very much” (7.5) with 98% acceptance and intended to buy.

Student's signature

Thesis Advisor's signature