

Duangkamol Luemchan 2007: Development of Natural Colorant from Black Glutinous Rice. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Assistant Professor Withida Chantrapornchai, Ph.D. 118 pages.

A survey of consumer behavior on colored foods revealed that color of foods had an influence on consumer's buying decision and consumers supported the use of natural colorants to substitute synthetic colors due to its safety. From the survey of natural colorant usage behavior of small enterprises and industrial users found that benefit of natural colorant usage was its harmlessness. The survey of natural colorant usage behavior of colorant manufacturers, colorant importers and colorant distributors showed that there is possibility in substitution of synthetic colorants by natural colorants. They also showed their interest in buying natural colorant from black glutinous rice (BGR), if it is produced. Color values L^*C^*h of BGR (Kum Doi Saket) were 22.03, 5.51 and 24.00 ° respectively. Time, temp and shaking are factors affecting colorant extraction from BGR. Optimum extraction conditions were BGR : water ratio of 1 : 3 (w : v), shaken in water bath at 62 - 65 °C for 67 – 75 minutes, concentrated the extracted solution by evaporating in teflon pot, which water - bathed in stainless pot at 87 ± 2 °C for 80 minutes. Concentrated colorant was dried using tray dryer at 50 °C for 9 hours. The physical, chemical and microbiological properties were: the color values $L^* C^* h$ of 34.99 16.37 42.87 ° respectively, a_w of 0.30, 6.75 % moisture content, solubility was 165.40 seconds, total anthocyanin were 3.40 mg/g colorant powder, total microbial count 27 CFU/g, yeast and mold was less than 10 CFU/g. Stability study of colorant powder from BGR found that increasing or decreasing pH from 7.0, and higher processing temperature tended to decrease total anthocyanin content and change the color values. Acceptability test of BGR colorant powder indicated that user satisfied in quality and form of colorant powder and suggested that there is possibility in substitution of synthetic colorants by BGR colorants. Consumer 98.5 % accepted the ice-cream, which was added BGR colorant and 83.0 % were interested in buying them, if they are available in the market.

Student's signature

Thesis Advisor's signature

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