Akesowan, A.  
**Effect of konjac flour incorporated with soy protein isolate on quality characteristics of reduced-fat chiffon cakes**  

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**Abstract**  
Effect of konjac flour (0.5 and 1%) incorporated with soy protein isolate (SPI) (5 and 10%) against wheat flour on physical, chemical and sensory properties of reduced-fat chiffon cakes prepared with 50% vegetable oil replacement with water were investigated. The addition of konjac flour and SPI produced reduced-fat cakes with significantly lower (p < 0.05) in specific volume, but higher (p < 0.05) in weight loss and water activity. All reduced-fat formulations were significantly darker (p < 0.05) than the control. The high concentration of SPI produced the cakes with higher L*(lightness) but lower a*(red) and b*(yellow). The addition of konjac flour incorporated with SPI significantly decreased (p < 0.05) hardness, cohesiveness and springiness of reduced-fat cakes. Sensory results indicated that the cakes with konjac flour and SPI tended to be darker, juicy, sweet and flavour, but less hard than the control; nevertheless, the cake with 0.5% konjac flour and 10% SPI was rated as tender as the control. Also, the reduction of fat and total caloric value of this cake were about 37.9 and 14.6%, respectively, whereas the increment of protein was 24.5% in relation to 100 g of the control cake. © 2010 Academic Journals.

**Author Keywords**  
Bakery products; Chiffon cake; Konjac flour; Soy protein isolate

**References**

- Akesowan, A.  
  **Effect of polydextrose or sorbitol on quality characteristics of reduced-calorie cakes containing konjac flour**  
- Akesowan, A.  
  **Quality of reduced-fat chiffon cakes prepared with erythritol-sucralose as replacement for sugar**  
- Alais, C., Linden, G.  
- Arrese, E.L., Sorgentini, D.A., Wagner, J.R., Anon, M.C.  
  **Electrophoretic, solubility and functional properties of commercial soy protein isolates**  
- Barndt, R.T., Antenucci, R.N.  
  **Fat and calorie-mogified bakery products**  
- Berglund, P.T., Hertsgaard, D.M.  
  **Use of vegetables oils at reduced levels in cake, pie crust, cookie, and muffins**  
Cochrane, W.G., Cox, G.M.  
(1992) Experimental Design,  
2nd ed. John Wiley and Sons, New York

Conforti, F.D., Davis, S.F.  
The effect of soya flour and flaxseed as a partial replacement for bread in yeast bread  

Lawless, H.T., Heymann, H.  
(1998) Sensory Evaluation of Food,  
Chapman and Hall, New York

Lucca, P.A., Tepper, B.J.  
Fat replacers and the functionality of fat foods  

Mashayekh, M., Mahmoodi, M.R., Entezari, M.H.  
Effect of fortification of defatted soy flour on sensory and rheological properties of wheat bread  

Newsome, R.  
Sugar substitutes  
In: Altschull AM (Ed.), Marcel Dekker, New York

Richardson, G., Langton, M., Faldt, P., Hermanson, A.M.  
Microstructure of a crystalline emulsifier and their influence on air incorporation on cake batter  

Subagio, A., Morita, N.  
Effects of protein isolate from hyacinth beans (Lablab purpureus [L.] Sweet) seeds on cake characteristics  

Sung, M.J., Park, Y.S., Chang, H.G.  
Quality characteristics of sponge cake supplemented with soy protein concentrate  

Thomas, W.R.  
Konjac gum  

Ward, F.M.  
Hydrocolloid systems as fat mimetics in bakery products: Icings, glazes and fillings  

Waring, S.  
Shortening replacement in cakes  

Zambrano, F., Despinoy, P., Ormenese, R.C.S.C., Faria, E.V.  
The use of guar and xanthan gums in the production of 'light' low fat cakes  