

Effect of Corn Milk by-product Addition on the Physical Properties of Whole Wheat Bread

Patcharaporn Tinchon, Mayoorkarn Dechkunchorn, and Kunwadee Kaewka*

Department of Food Technology and Nutrition, Faculty of Natural Resources and Agro-Industry, Kasetsart University, Chalermprakiat Sakon Nakhon Province Campus, Sakon Nakhon 47000, Thailand

*Corresponding author: E-mail: kunwadee.ka@ku.th

<https://doi.org/10.12982/CMUJNS.2019.0008>

Received: June 25, 2018

Revised: September 12, 2018

Accepted: September 20, 2018

ABSTRACT

Corn milk by-product (CMBP) is normally wasted or used as animal feed. In this study, fresh-CMBP (F-CMBP) and powdered-CMBP (P-CMBP) (14, 28 and 42% whole wheat flour) were used to improve the textural and other physical properties of whole wheat bread (WWB). Bread samples were kept for 6 days, and analyzed at days 0, 3 and 6 using room temperature storage. Dough height, bread height, crust color, crumb color, hardness and the specific volume of bread were measured. Fortification with 14 and 28% F-CMBP increased the specific volume of WWB, but lowered the bread height. This indicated the collapsed structure of WWB as the CMBP disturbed the dough and bread structure. F-CMBP and P-CMBP lowered the hardness of WWB compared to traditional WWB. Fortification with 14% F-CMBP produced the best result, reducing the hardness of WWB. However, a greater amount of F- and P-CMBP for fortification resulted in a higher hardness value. The WWB samples fortified with CMBP seemed to have increased crust L^ values, but decreased L^* values for bread crumb color. This study suggested the potential of CMBP as a food ingredient to improve textural and other physical properties of food products.*

Keywords: Corn milk by-product, Whole wheat bread, Physical property, Textural property