

ANALYSIS OF FOOD LABELS TO EVALUATE THE NUTRITIONAL QUALITY OF BREAD PRODUCTS FROM LOCAL SUPERMARKETS IN PASIR MAS, KELANTAN



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INTRODUCTION

Bread is a staple food in most households and even in Asian countries nowadays. Bread market globally and locally were predicted to be thriving in the next few years. The key market trends for bread products in Malaysia and Singapore are demands for nutritious products and clean-label claims on products such as gluten-free, no artificial additives etc. So, with the increasing demands for 'healthy' bread options, are the standard commercial bread bad?



OBJECTIVE

To evaluate the nutritional quality of commercial bread products sold in local supermarkets in Pasir Mas, Kelantan based on the analysis of information on the food labels.

1. To compare the nutrient contents in commercial bread (white bread vs high fibre bread vs flavoured bread)
2. To determine the mean difference in price between 3 categories of commercial bread.
3. To determine the correlation between energy of bread products to carbohydrate, protein and total fat content in bread products.

METHODOLOGY

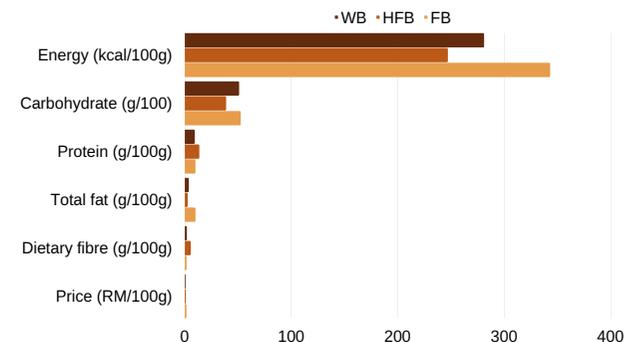
Any commercial bread loaves from 3 supermarkets that fit the eligibility criteria were chosen. The bread products were categorised into 3 categories; white bread (WB), high fibre bread (HFB) and flavoured bread (FB). The nutritional contents per 100g of bread products were calculated & analysed between bread categories. Nutrient contents were energy, carbohydrate, protein, total fat, dietary fibre and salt, in addition to price. Data were analysed using IBM SPSS and the significance level was set at $p < 0.05$. The differences in nutrient contents between bread categories were assessed using Kruskal-Wallis test and followed up with Mann-Whitney test with Bonferroni correction to see which pair were significant. Spearman's correlation test was applied to analyse the correlation of carbohydrate, protein and total fat to energy.

RESULTS

5 of 6 nutrient contents except sodium were found to have statistically significant median difference across three bread categories. Overall, FB has greater energy (343kcal/100g), carbohydrate (52.40g/100g) and total fat (9.90g/100g) than HFB while HFB has higher dietary fibre (5.50g/100g) than FB and higher protein content (13.50g/100g) than WB. Bivariate correlation analysis resulted in carbohydrate ($r=0.697$, $p=0.008$) and total fat ($r=0.966$, $p<0.001$) had positive correlation to energy of bread products respectively. Pricewise, FB (RM1.39/100g) showed statistically significant median difference compared to WB.

DISCUSSION

- Incorporation of other ingredients in the formulation of bread products such as dairy could boost nutritional potential and bread making quality. However, adding ingredients also will increase the total energy and other nutrient contents. For example, FB has higher energy, carbohydrate and total fat compared to other bread categories.
- Greater protein content of HFB could be attributed to the types of flour used in formulation of which could contain higher protein content.
- Higher protein flour like wholemeal flour also may attribute to higher dietary fibre in HFB because the bran and germ layer of cereal protein is not or only partially removed.
- Although sodium content has no significance, there are studies that reported difference between sodium content across other bread products.
- Across 3 bread categories, there is significant difference in pricing of which could be attributed to multiple factors such as the types and amount of ingredients used, source of the ingredients, supply and demand and others. However, the pricing of commercial bread products were usually regulated and controlled as they are staple food.



CONCLUSION

Based on the food labels of bread products, this study manage to analyse the nutritional contents among commercial bread. Flavored bread showed to be significantly higher in energy, carbohydrate and fat while high fibre bread was higher in protein as well as dietary fibre. Salt content showed no significant difference among commercial bread products. High fibre bread showed to be greater in price. In the final analysis, food labelling provides information regarding the food product of which could influence individual dietary choices.

REFERENCES

Angelino, D., Rosi, A., Ruggiero, E., Nucci, D., Paoletta, G., Pignone, V., Pellegrini, N., & Martini, D. (2020). Analysis of Food Labels to Evaluate the Nutritional Quality of Bread Products and Substitutes Sold in Italy: Results from the Food Labelling of Italian Products (FLIP) Study. *Foods*, 9(12), 1905. <https://doi.org/10.3390/foods9121905>