Indirect Nutrient Analysis

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Introduction

- Obtaining nutrition information of foods:
  1. Direct Chemical Analysis
  2. Indirect Nutrient Analysis
- Indirect Nutrient Analysis
  1. an acceptable means for nutrition labelling
  2. the trade shall:
     - ensure the accuracy and suitability of the data and method used.
     - use appropriate method in calculating the nutrition labelling values.
     - be aware of its limitations.

Information needed for Indirect Nutrient Analysis

1. the types and contents of ingredients of the food products
2. the manufacturing process of the food products
3. relevant adjusting factors (e.g., Retention, Yields)

- Understand the concept of Indirect Nutrient Analysis
- Ensure the nutrient data is obtained from databases with appropriate testing methods
- Consider the latest version of food composition databases and relevant adjusting factors from recognised foreign or Mainland food/health authorities.

Suggested Databases & Sources of Information

1. USDA National Nutrient Database for Standard Reference, US Department of Agriculture;
2. USDA Table of Nutrient Retention Factors, US Department of Agriculture;
3. Food Yields Summarized by Different Stages of Preparations, US Department of Agriculture;
4. McCance and Widdowson's the Composition of Foods, Food Standard Agency and Institute of Food Research UK;
5. Nutrition Panel Calculator, Food Standards Australia New Zealand;
6. ASEAN Food Composition Tables, INFOODS Regional Database Centre of the Institute of Nutrition, Mahidol University Thailand; and
7. China Food Composition Table 2002 and China Food Composition Table 2004, The Institute of Nutrition and Food Safety, Chinese Center for Disease Control and Prevention.

Steps of Indirect Nutrient Analysis

1. Collect the product recipe and manufacturing processes
2. Find out the weight of individual ingredients → food composition database → nutrient content of each ingredient
3. Correct the weight of ingredients (reflect edible portions)
4. Adjust for the effects of cooking / processing:
   a) yield factors → raw and cooked weights
   b) retention factors → nutrient losses / gains
5. Sum nutrient values of ingredients
6. Determine the quantity of prepared food produced by the recipe
7. Determine the final values per weight / volume / serving portion

Tips to Increase the Accuracy of Indirect Nutrient Analysis

- Adopt GMP (↓ deviations among same product)
- The type / amount of ingredients listed in the standardised recipes for the products → Accurate?
- The nutrient values in the food composition database → Representative of particular products?
- Calculations performed by professionals? Based on the best available data and adjusting factors?
- Keep documents and records that support the analysis.

Centre for Food Safety – Nutrition Label Calculator

- Nutrition Label Calculator營養標籤計算器
- assist the trade to produce nutrition labels
- available at the website of the Centre for Food Safety
  www.cfs.gov.hk/english/programme/programme_nifl/programme_nifl.html

Limitations of Indirect Nutrient Analysis

- Food composition databases nutrient values → estimates only, vary by many factors (e.g., seasons, processing practices, ingredient sources).
- Food processing and cooking → gain / loss in weight and nutrients in the products.
- Different food composition databases → vary in definition of nutrients and analytical methods for estimating nutrient values in foods.

Responsibilities of the Trade—
"Ensuring the accuracy of the nutrition label."

- Is indirect nutrient analysis suitable for the products?
- Have all factors been taken into account in calculations?
- Has the chosen food composition database adopted suitable analytical methods? Are the nutrient values derived from the database suitable for nutrition labelling?
- Results of indirect nutrient analysis may deviate from that of laboratory analysis. If in doubt, use laboratory analysis.
- The compliance test of nutrition labelling is based on the laboratory analysis using specified methods.

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Please refer to the

"Method Guidance Notes on Nutrition Labelling and Nutrition Claims"

for more information on nutrient laboratory testing.

Thank you!

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