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Report

Evaluation of food composition tables commonly used in Benin: Limitations and suggestions for improvement ☆

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Abstract

Reliable food composition data are important in the field of nutrition and health. To date, Benin does not have a national food composition table. Foreign food composition tables are presently used, but such tables do not include most of the foods as consumed in Benin. A critical evaluation on the quality of food composition tables currently in use in Benin was conducted. Users of food composition data were identified and information about their expectations and requirements was collected using a structured questionnaire. Laboratory visits were carried out in two organizations conducting food analysis in Benin. The characteristics of the food composition tables assessed indicate the limitation concerning number of foods contained and number of nutrients included. Information on sampling procedures is very limited and there is little indication about the analytical methods used to derive nutrients values. Data are reported for mainly raw foods, although many foods are consumed after being processed. Data on wild foods, which are consumed during food shortage periods by many people living in rural areas of the country, are also missing. Laboratory visits revealed a lack of sound analytical equipment, a lack of financial resources, and a shortage of adequately trained staff. This study underscores the need for high-quality food composition data in Benin.

Keywords: Food composition; Food; Nutrients; Users; Benin

1. Introduction

Reliable food composition data are important in the field of nutrition and health, as well as for a variety of applications. In developed countries, considerable effort has been spent in making available comprehensive and more or less up-to-date food composition tables. However, in developing countries the data are often outdated mainly because food composition activities are not well-coordinated (Castenmiller and West, 1994).

In Benin, there are many ethnic groups, and people therefore have diverse eating habits. In addition, because of its diversified agro-ecological and climatic conditions, the country shows huge biodiversity consisting of a wide range of plant foods and animal products. The main dishes in Benin are derived from cereals (maize, sorghum, millet and rice), roots and tubers (cassava, yams, cocoyam and sweet potato) and legumes (cowpeas, mung beans). Main dishes are often served with a spicy sauce or vegetable (okra, amaranth, spinach) in which some condiments (onions, pepper, tomato, maggi) and other ingredients like *egusi* (milled pumpkin seeds), groundnut oil or red palm oil can be found. Staple foods provide the bulk of energy intake of household members and are sometimes complemented with animal products (fish, goat, beef, pork, chicken and guinea fowl).

During food shortage periods, people living in rural areas are compelled to consume a variety of wild gathered foods (nere, baobab, wild birds and eggs) and many leaves. In urban areas, rapid changes in eating patterns have lead to the shift toward consuming more energy-dense processed foods, refined imported rice, fast foods, snacks and soda.

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Despite this tremendous variety of foods available in Benin, the food composition tables currently in use in the country are incomplete and do not include the composition of most of the varieties of food. Since these foods may have considerable health implications for the country, there is, therefore, a need to make available accurate and reliable data on their composition. The study objectives were to:

1. identify the users of food composition data in Benin and their expectations;
2. identify and evaluate the quality of food composition tables currently in use in Benin;
3. evaluate analytical/technical capabilities in the country; and
4. propose future food composition activities.

2. Materials and methods

2.1. Identification of users of food composition data

We used the Benin phonebook (Office des Postes et Télécommunication (OPT), 2002) to obtain a list of 25 organizations working in the field of nutrition. It may be possible to find more than 25 organizations involved in nutrition in Benin, and we therefore assume that some of them have been omitted just because they are not listed in the Benin phonebook.

These 25 organizations were contacted by telephone to know whether or not they use food composition data in their daily activities. Sixteen of the 25 organizations reported using food composition data and were included in our study.

Two visits were paid to each organization. During the first visit, we explained the study objectives and clarified possible uncertainties and misunderstandings. An appointment for a second visit was made, and information on food composition data was collected using a structured questionnaire. During the second visit, four organizations were not able to participate in the study and were excluded from the study sample (see Fig. 1).

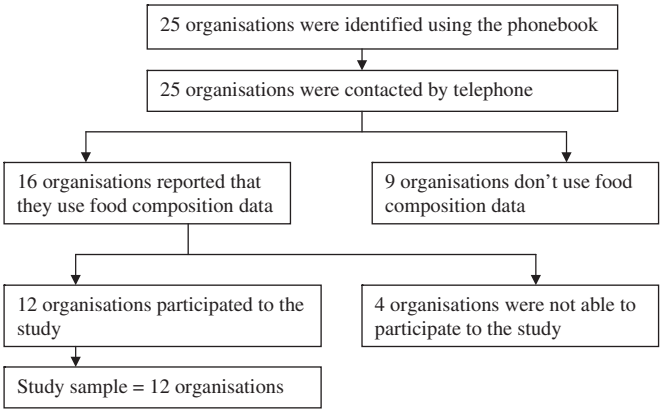

Fig. 1. Selection of the organizations.

2.2. Identification and evaluation of food composition tables used in Benin

Ten libraries, which are the majority of libraries available in Benin, were visited to identify food composition tables currently in use in the country. These tables were evaluated according to five criteria as suggested by Greenfield and Southgate (2003) for data quality evaluation:

- food description
- sampling procedure
- sample handling methods
- analytical method used
- mode of expression of data.

2.3. Evaluation of analytical/technical capabilities in the country

To assess the analytical capabilities in the country, two laboratories conducting food analysis were visited. These laboratories were selected based on their connection with the Department of Nutrition and Food Science of the University of Abomey-Calavi, but there might also be other organizations in the country conducting food analysis. During the laboratory visits, the availability of the following items was appraised using a checklist: equipments and consumables, reliable analytical methods, expert analysts, compiler of food data, quality control and quality assurance activity.

2.4. Recommendations for future food composition activities

A joint meeting of different users of food composition data was held in which activities have been proposed to address the problems identified during the study.

3. Results and discussion

3.1. Users of food composition data in Benin

Table 1 represents the study sample organizations. As shown in this table, food composition data are used by international organizations, governmental agencies, food industries, non-governmental organizations and a private clinic.

Food composition data are used for many purposes in Benin. Table 2 links the users to the different uses they make of food composition data. It appears that food composition data are used for nutrition interventions (60% of the users), information for the public (42%), policy-making (42%), nutrition research (17%), food labelling (17%) and academic education (8%).