Pilot study to develop a food composition database for a Southern region of Ecuador

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Rationale and Objectives: This research is focused on prevention of adolescence obesity and maintenance of an appropriate diet, thus the availability of an updated local food composition database is highly needed. Methods: The selection of foods was done based on a cross sectional study conducted in 2009, that aimed to assess dietary patterns through 24 hour recall in a random sample of 770 adolescents in Cuenca and Nabon cantons, Ecuador. The most frequently consumed foods were searched in a food composition database from Peru (CENAN/INS, 2008), Mexico (INNSZ, 1999) and Chile (INTA/U.Chile, 1997) for further food intake assessment. 95 foods, particularly locally produced and prepared, were not in these databases and were selected for macronutrient analysis. Those key nutrients were selected because our main goal is to evaluate energy content, and only analytes that are considerably present in each food were determined. To document and warrant the sample traceability and data quality, pre-analytical and post-analytical protocols were prepared based on recommendations of LATINFOODS and EuroFIR. A sampling plan was designed to collect representative samples from the main local markets and supermarkets. Considering that variability data for the selected key nutrients in those foods is not available, a sample size of n=12 was taken (pilot study) and mixed as composite sample. One analytical portion was analyzed in triplicate, determining: moisture and dry matter (AOAC, 2002; Anklam et al., 2001), ash (AOAC, 2002; Sullivan and Carpenter, 1993), total fat by Weibull (AOAC, 2002; Sullivan and Carpenter, 1993), total nitrogen by Kjeldahl (AOAC, 2002; Sullivan and Carpenter, 1993), dietary fiber (Prosky et al., 1992) and total and available carbohydrates (by difference). Results: At the moment, 15 % of selected foods were analyzed (eg. pewa nut, highlands papaya, melloco, mizhque, chibil) and results are presented as means ± sd. Among triplicates, total fat and protein content showed the highest variability and sample size was recalculated based on these variability values. Conclusions: As a result, bigger sample sizes (n=15-30) must be necessary when those macronutrients are part of the analysis.

Key words: food composition database, local foods, Ecuador, macronutrients