as staples. Baobab leaves (*Adansonia digitata*) were most frequently used. Samples of green leaves (*A. digitata, Amaranthus viridis, Tamarindus indica, Allium cepa*), seed and flour (*Parkia biglobosa*) and fruits (*Tamarindus indica*) were analyzed for water, energy, fat, protein, minerals, amino acids and carotenoids. Dried green leaves were high in protein and minerals (Ca, Fe, Zn). *A. viridis* was particularly rich in betacaroten (3300 μg/100 g). Fermented seeds from *Parkia biglobosa*, used as a condiment, had 37% protein and 35% fat. Wild foods are common ingredients of the local diet and provide important dietary micronutrients in this agricultural area. We have earlier found wild foods to be important in other parts of Mali (Nordeide *et al.*, 1994). In combination with locally produced staples, wild foods are nutritionally important in these communities in Mali.

M. B. Nordeide, H. Holm & A. Oshaug (1994). Nutrient composition and protein quality of wild gathered foods from Mali. *International Journal of Food Sciences and Nutrition*, **45**, 275–286.

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**Nutritional features of selected fruits and vegetables in Italian consumption patterns: an assessment based on composition data.** S. Ruggeri, P. Conforti, A. Turrini,* A. D'Amicis & E. Carnovale.

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Food composition and consumption data are both crucial for nutritional quality assessment of diet. This work is aimed at assessing the nutritional contribution of a group of selected fruits and vegetables in Italy, taking into account their effective consumption. Pooling data retrieved from different sources allowed us to work with 18 fruits and 21 vegetables, which include the most frequent in Italian diet. Four key components — sugars, dietary fibre, vitamins A and C, whose contents come from Italian composition tables — were chosen as nutritional quality markers for fruits and vegetables. Sugars, dietary fibre and vitamins intakes from each kind of fruit and vegetable have been calculated, in order to assess which are the most important sources. Results indicate apples as the first most important source of sugars (23%) and dietary fibre (18%) in Italian consumption of the above-selected fruits. Carrots and tomatoes are the most important sources of sugars among vegetables, while dietary fibre comes basically from artichokes. The highest contribution for vitamin C comes from oranges (22%), followed by peppers (13%). Vitamin A comes especially from carrots (almost 40%), from tomatoes (10%) and from oranges (8%). This classification could be compared with another one based on nutritional quality of the above-selected fruits and vegetables drawn, aside from Italian consumption, from simple composition data. This may provide indications for interventions in consumption patterns.

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**Variability of minerals in foods from the U.S. total diet study.** Jean A. T. Pennington.

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The nutrient levels of foods vary according to inherent (age, maturity, species, variety, cultivar, diet), environmental (climate, soil type, rainfall, season), and processing (storage time/temperature, methods of preservation/preparation) factors. The nutrient content of some processed foods is also affected by reformulations, use of food additives, and levels of nutrient fortification. In addition, the values reported by laboratory chemists and statisticians are affected by sampling design, sample preparation, analytical methods, and statistical treatment of the data (e.g. handling of outliers). Some nutrients are more variable than others, and some foods (e.g. liver, oysters) are more prone to nutrient variability.

Frequency distributions are provided for sodium, calcium, and iron in several foods from the U.S Total Diet Studies conducted yearly between 1982 and 1991. These studies included 37 individual analyses of 261 foods for 11 minerals. Median, mean ± SD, and CVs were calculated for the 11 minerals in each food. Foods considered to be 'sources' of the minerals were those that provided at least 10% of the Daily Value (recommended intake levels used for nutrition labeling) per typical serving of food.

Results indicated that of the 261 foods there were more foods (43–81) that were sources of iodine, phosphorus, sodium, selenium, and iron. There were fewer foods (28–40) that were sources of manganese, potassium, and zinc, and fewer (16–20) that were sources of calcium, magnesium, and copper. Phosphorus, potassium, and magnesium were the least variable minerals in these sources, with average CVs of 15–17%, followed by sodium, calcium, zinc, copper, iron, and manganese with average CVs of 21–28%. Selenium was more variable at 37%, and iodine was highly variable at 158%.

Database compilers should consider the variability of nutrients in foods before determining which values (e.g. means, medians, or modes) are the most representative for a database. Frequency distributions are useful in evaluating the variability of nutrients in foods and may assist database compilers in identifying outliers and deriving representative values. Values with high variability should be used with caution when assessing nutrient intakes or providing dietary guidance. Reliance on a food as a nutrient source could be misleading if the nutrient levels are highly variable.