

samples. Neutron activation is suitable for almost all media. X-ray methods are used especially for environmental samples. For the speciation of organic Hg compounds, selective organic extractions with different chromatographic methods are the most extensively used.

Determination of folates in foods — challenges and advances of the use of HPLC. Liisa Vahteristo,* Velimatti Ollilainen, Pekka Koivistoinen & Pertti Varo.

Department of Applied Chemistry and Microbiology, FIN-00014 University of Helsinki, Finland.

There is increased need for specific data on folates and their vitamers distribution in foods. Many procedures for folate determination do not meet these needs, but are chiefly meant for measuring total folates or added folic acid. Use of HPLC enables separation and quantitation of the most abundant folate vitamers in their monoglutamate forms (Gregory, 1984).

In this study reduced folate vitamers were determined in some foods, e.g. liver and liver products, after heat extraction and deconjugation of polyglutamate forms of folate moiety into folate monoglutamates using hog kidney conjugase. These folate forms were separated using reversed-phase high performance liquid chromatography and quantitated using fluorescence detection. The methods used provided data on the amounts and the distribution of the folate vitamers present. The amounts determined in e.g. pork and beef liver were much higher than expected from literature. Folate content of some other foods were much more in accordance with previous findings.

The data on folate content of foods should be carefully evaluated for its validity, and in many cases new analysis should be performed before such data can be used, for example for the estimation of the dietary intake of folate. Additional data on folate forms present in food, determined using HPLC, provide more in-depth information of the chemical nature of this vitamin. But careful validation of the method and specific identification procedures are essential for HPLC methods intended for folate analysis.

1. Gregory III, J. F. (1984) *J. Assoc. Off. Anal. Chem.*, **67**(5), 1015–19.

*To whom correspondence should be addressed.

New components included in future food composition tables. Gary. R. Beecher.

Food Composition Laboratory, Beltsville Human Nutrition Research Center, ARS/USDA, Beltsville, MD 20705, USA.

Nutrients and food components for which data are essential are dependent on the food supply and health status of the population of each country or region. Several regions of the world have diseases resulting from inadequate intakes of several micronutrients including iodine, iron and vitamin A active components. Several

debilitating diseases, in 'well-nourished' regions of the world have strong dietary associations. With regard to cancer and cardiovascular disease (CVD), many nutrients and food components with antioxidant activity are being investigated as preventive agents. These components include carotenoids, flavonoids, phytate, tocopherols, selenium and vitamin C. Several food component, coumestrol, isoflavonoids and lignans, either have anti-estrogenic activity or are converted to compounds with this activity in the gastro-intestinal tract and are proposed to reduce the risk of hormone related cancers. The risk of CVD also is altered by dietary levels of total fat, individual fatty acids, trans fatty acids and cholesterol as well as dietary fiber and its fractions. Low folic acid intake has been implicated in the risk of several diseases. Dietary levels of calcium, boron and vitamins D and K are important determinants for osteoporosis. The intake of sodium is one of the primary risk factors to stroke. Example of priority setting and justification for the addition of nutrients to databases will be discussed.

The selenium content of human milk and infant formulae in Finland. Päivi Ekholm,* Maija Ylinen & Pertti Varo.

University of Helsinki, Department of Applied Chemistry and Microbiology, Post Box 27, Viikki-D, FIN-00014 University of Helsinki, Finland.

The aim of this study was to monitor the effects of selenium (Se) fertilization (started in 1985) on the Se content of human milk and infant formulae.

The samples of human milk were received from the Helsinki University Central Hospital. Each sample was a pool of milks from several donors (median 20). The infant formulae were sampled from food stores in the Helsinki area. Se was determined from freeze-dried samples by the electrothermal atomic absorption method.

The Se content of human milk was 0.08 mg/kg DM in 1994, more than twice as high as in the mid 1970s. The present level in Finland is nearly equal to that prevalent in many other countries. The mean Se content of infant formulae was 0.06 mg/kg DM in 1994, which is three times higher than in the mid 1970s. The Se content of infant formulae has remained lower than that of human milk.

The present Se content of human milk is an indication of the improved Se status of the Finnish population. The Se fertilization has increased the Se content of all Finnish foods effectively, including the infant formulae.

*To whom correspondence should be addressed.

Trends in the cadmium contents of bovine and porcine liver between 1982–1995. Merja Euroola* & Pertti Varo.

University of Helsinki, Department of Applied Chemistry and Microbiology, P.O. Box 27, Viikki, General Chemistry, SF-00014 University of Helsinki, Finland.

The aim of the study was to monitor retrospectively the development of the cadmium (Cd) contents of bovine and porcine livers from the beginning of 1980.