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Book review

Bioavailability and Analysis of Vitamins in Foods, by G.F.M. Ball; Chapman & Hall, London, 1997, XII+569 pp., price £95.00 (hard bound), ISBN 0412 78090 9.

In view of the general concern in the nutritional status of both children and adults food composition tables are of the utmost importance. In this book the author is particularly interested in the contribution of vitamins to this subject.

Chapters I and II can be seen as a general introduction. Chapter I describes the physiology of digestion and absorption in general and, in a second part, also more particularly directed to fat-soluble and water-soluble vitamins. Chapter II treats the analytical techniques used for the determination of vitamins. For this the author even explains the basic theory about the different techniques used, especially about high performance liquid chromatography. Newer techniques, however, such as LC-MS and GC-MS are not covered.

In the next thirteen chapters all vitamins (i.e. the vitamins A, D, E, K, B₁, B₂, niacin, B₆, pantothenic acid, biotin, folate, B₁₂ and vitamin C) are treated in a similar way. The fact indeed that this is not a multi-author book results in a close structural resemblance between the different chapters. This uniformity positively influences the transparency of the whole work.

Each chapter gives a short description of the chemical structure (with a few errors e.g. for ascorbic acid) and the nomenclature of the vitamin of interest followed by a presentation of the deficiency

syndrome. Starting from the physicochemical properties of each vitamin the analytical procedures are described. Thereby much attention is paid to high performance liquid chromatography and the experimental conditions of the applications of this technique are brought together in very useful tables. Newer techniques (e.g. LC-MS and GC-MS), however, are not discussed. The interest in older techniques is also reflected in the reference lists. In addition, the personal opinion of the author about the methods described is often absent. Also, suggestions for application of chromatographic techniques or conditions applied to vitamin analysis in other matrices (serum, urine), to food analysis are never made. For each vitamin the bioavailability and the factors influencing this bioavailability (e.g. dietary fibre, alcohol) are presented followed by the effects of food processing, storage and cooking on the vitamin content of different foods. For all vitamins, the Recommended Dietary Allowance (RDA), the effects of a high intake and the assessment of the nutritional status are described. Each chapter contains an extensive literature list.

Although some paragraphs contain too much common knowledge (e.g. chromatographic principles, the discussion about peak height versus peak area), in general the work is a very good compilation of a lot of information and data on the bioavailability and analysis of vitamins in food. Consequently, it can be described as an essential work for every researcher interested in this topic.

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