BIOTIN CONTENT OF BREAKFAST CEREALS

R.L. HOOD

Biotin, a water-soluble vitamin of the B-complex group, is widely distributed in natural foods, but its concentration is low even in foods considered to be good sources (e.g. organ meats, egg yolk, and nuts). With the exception of the bran component, cereals have a low biotin content. Since breakfast cereals are regularly included in the Australian diet, it is important that the biotin contents of these cereals are known.

Twenty breakfast cereals from several manufacturers were purchased in Sydney for biotin analysis. Cereal components isolated from wheat, rice and corn were also assayed for biotin. Biotin was determined on ground samples using a radiochemical procedure (Hood 1975).

Published values of vitamin contents for a particular breakfast cereal can only represent an average value for that product and process, since variations in the natural content of grain, in processing conditions and in analytical methodology influence the actual vitamin content of processed food. Biotin concentrations varied from 7.6 ng/g of product in Rice Bubbles to 167 ng/g in All Bran. Cereals based on rolled oats have an above average biotin content since they are whole-grain cereal products containing bran, germ and the aleurone layer. Although the brand names vary, all biotin contents are comparable to a recent survey of Canadian breakfast cereals (Hoppner and Lampi 1983). Many breakfast cereals are low in biotin because cereal grain fractions which are low in biotin are used as starting ingredients. As rice is polished (whitened) the biotin content decreases with each stage as a result of increasing amounts of bran being rubbed off the outside of the grain. The biotin content of wheat flour is dependent on the extraction rate. As extraction rate of flour increases so does the proportion of germ and bran fragments; both of which contain high concentrations of biotin.

B-complex vitamins are routinely added to most breakfast cereals, however, this is not the case for biotin. The average Australian consumes approximately 1.5 µg of biotin each day from breakfast cereals, which is only 1-2% of the estimated safe and adequate daily intake of biotin recommended by the United States Food and Drug Administration.

HOOD, R.L. (1975). J. Sci. Fd Agric. 26: 1847.
HOPPNER, K. and LAMPI, B. (1983). Nutr. Rep. Int. 28: 793.

CSIRO Division of Food Research, P.O. Box 52, North Ryde, New South Wales 2113