

**Development of a fatty acid compositional database of Australian foods**

*NJ Mann<sup>1</sup>, PA Percival<sup>1</sup>, AJ Sinclair<sup>1</sup>, BJ Meyer<sup>2</sup>, PRC Howe<sup>2</sup>, J Lewis<sup>3</sup>*

<sup>1</sup>Department of Food Science, RMIT University, Melbourne, VIC, 3000

<sup>2</sup>Smart Foods Centre, University of Wollongong, NSW, 2522

<sup>3</sup>Australian & New Zealand Food Authority, ACT, 2610.

An important aspect of the work of dietitians and researchers in the field of nutrition is the estimation of the nutrient composition of an actual or theoretical diet. However for dietary studies involving fatty acid intake, a reliable database on the fatty acid composition of food has been lacking. The Supplement to NUTTAB95 (1) contains a table of fatty acid profiles for a subset of the foods within the primary NUTTAB (2) database. However this data, which is expressed as g/100g edible portion, has only been published to one decimal place. This tends to underestimate the long chain polyunsaturated fatty acids (LCP) of the omega-3 family, which are only present in small amounts in individual foods, but are significant in the context of a whole diet. These low values (<0.05g /100 g) often round down to zero when reported to a single decimal place and so it is likely that these fatty acids will be consistently under-reported in any dietary analysis.

An extensive search of the literature and survey of research groups, government bodies and industry sources was conducted to locate Australian and New Zealand food fatty acid compositional data. The database was constructed using Microsoft Excel 97 software and using a template based on the NUTTAB95 fatty acid supplement, a version of which was provided by ANZFA as g/100g edible portion (two decimal places). This NUTTAB95 fatty acid supplement data was scanned for foods for which LCP values were questionable. Approximately six hundred foods including the majority of the meat, eggs, prawns and some processed fish products were excluded as there was either misidentification of LCP or no value recorded for important LCP known to occur in those foods. The general saturated, monounsaturated and polyunsaturated acid profiles of these foods in the NUTTAB95 supplement however, were found to be representative and certainly applicable in any dietary analysis not requiring detailed information on the LCP. Other food items with a complete fatty acid profile from a reputable Australian or New Zealand source that was reported in concentration terms (g/100g edible portion) were added to the existing NUTTAB95 supplement. A standardised set of fatty acid descriptors was constructed to greater reflect the true identity of the individual fatty acids and overall accuracy of the composition.

Fatty acids were selected for inclusion in the new database based on their abundance in foods and their biological significance. The final database contains 985 lines of compositional data, each representing a food item, with data on 30 fatty acids (13 saturated fatty acids, 7 mono-unsaturated fatty acids and 10 PUFA) which include six omega-6, four omega-3 and three trans fatty acid columns. The database contains fatty acid compositional information and total fat levels but no other nutrient data. The database is designed particularly for use by researchers conducting dietary analysis studies in which knowledge of LCP intake may be critical.

1. National Food Authority. NUTTAB95 database. Canberra: National Food Authority, 1995.
2. Australia New Zealand Food Authority. Supplement to NUTTAB95 database. Canberra: Australia New Zealand Food Authority, 1999.