

**NUTRIENT COMPOSITION OF AUSTRALIAN BREAD:  
AN ALL-STATES SURVEY OF WHITE, MIXED GRAIN AND WHOLEMEAL BREAD**

**D.C. MUGFORD, A.R. WALKER and P.J. GRIFFITHS**

Results of the last major survey from the Bread Research Institute of Australia, incorporated into Australian food tables (1989), originate from the early 1980's. Since that time there have been changes both in bread formulation and in the structure of the bread-making industry. In order to assess effects of such changes on bread composition, a new survey was designed to compare bread composition from large and small bakeries and to re-assess the nutrient composition of bread around Australia.

In the initial study (1992), loaves of white, mixed grain and wholemeal bread were obtained from 20 randomly selected hot bread shops, five in-store bakeries and all (five) major plant bakeries in the Sydney metropolitan area. Analysis showed there were some anomalous results from a specific geographical grouping of hot bread shops which had significantly lower slice weights (1/5 to 2/3 of normal) and higher fat contents (3.2 and 3.6% for white and wholemeal, compared with 2.6 and 3.0% respectively). Apart from this group, results from the three types of bakeries were not substantially different and those from the large plant bakeries were generally close to the means of other bakeries.

Subsequently large plant bakeries were sampled from all States (1993/4) Samples were tested for proximates, thiamin and some minerals. Some variations were found between bakeries, notably fat contents. Despite known differences in wheat composition due to different growing region, bread protein contents were remarkably similar over all States and regional differences were only detected in magnesium and zinc contents. Compared with the previous survey, results from this study are most noticeably different in respect to higher levels of thiamin (due to mandatory additions since 1991), sodium (affected by some high results), calcium (probably due to use of calcium salts as preservatives) and energy (due to a higher factor applied to carbohydrate).

**Australian Average Bread Composition per 100 g**  
(Results from this and previous studies, as consumed)

	White		Mixed Grain		Wholemeal	
	This	Previous	This	Previous	This	Previous
Energy kJ	1060.0	1020.0	1060.0	1025.0	1025.0	1000.0
Protein g	8.4	8.6	9.2	10.1	9.2	10.1
Fat g	2.7	2.5	2.9	2.8	3.0	2.9
Carbohydrate g	48.0	49.0	47.0	47.0	44.0	45.0
Total dietary fibre g	2.9	2.7	4.8	5.1	6.4	6.4
Thiamin mg	0.40	0.13	0.42	0.18	0.40	0.23
Sodium mg	520.0	450.0	500.0	470.0	460.0	470.0
Potassium mg	100.0	110.0	160.0	220.0	210.0	270.0
Phosphorous mg	86.0	90.0	150.0	140.0	150.0	150.0
Magnesium mg	28.0	27.0	44.0	47.0	60.0	60.0
Calcium mg	86.0	50.0	98.0	52.0	82.0	54.0
Iron mg	1.3	1.2	2.5	2.1	2.2	2.3
Zinc mg	0.7	0.6	1.1	1.3	1.2	1.3