

## **Omega-3 polyunsaturated fatty acid content of canned meats commonly available in Australia**

D Li<sup>1</sup>, M Mansor<sup>2</sup>, SR Zhuo<sup>2</sup>, T Woon<sup>2</sup>, MA Anthony<sup>2</sup>, AJ Sinclair<sup>1</sup>

<sup>1</sup>*Department of Food Science, RMIT University, Melbourne 3001, Australia*

<sup>2</sup>*Singapore Polytechnic Institute, Singapore*

Canned meat is an important part of the diet, especially for bush walkers, travelers and soldiers during field training. However, Australian Food Composition databases lack information on lipid and fatty acid content in canned meats (1). The aim of the present study was to determine the fatty acid content in 20 species of commonly available canned meats in Australia, which includes five beef, two mutton, eight pork, four chicken and one goose.

All canned meats were purchased from the local supermarkets and Asian grocery shops, Melbourne. Before lipid extraction all samples were blended into fine minces to increase the surface area of the samples exposed to solvent during lipid extraction. Blended and homogenized sample was extracted with chloroform-methanol (2:1 v/v) containing 10 mg/L of butylated hydroxytoluene. The methyl esters of fatty acids of the total lipid extract were prepared by standard methods. The fatty acid methyl esters were separated by capillary gas liquid chromatography.

Total lipid content of the analyzed samples ranged from 2% in chicken (Hormel, USA) to 41% in stewed pork (Ma Ling, China). Total n-3 polyunsaturated fatty acid (PUFA) concentration ranged from 30 mg/100g in canned chicken (Hormel, USA) to 659 mg/100g in chicken hot dog (Tulip, Denmark). The 18:2n-6 was the most predominant PUFA in all analyzed samples, ranging from 187 mg/100g in corned beef (Hamper, Australia) to 2832 mg/100g in chicken luncheon meat (Tulip, Denmark). Other main PUFA found in the analysed samples in order were 18:3n-3, ranging from 14 mg/100g in canned chicken (Hormel, USA) to 590 mg/100g in chicken hot dog (Tulip, Denmark), 20:4n-6 ranging from 11 mg/100g in Camp Pie (Tom Piper, Australia) to 65 mg/100g in chicken (Hormel, USA) and roasted goose (Ma Ling, China), and 22:5n-3 ranging from 5 mg/100g in the Chicken (Hormel, USA) and Chicken luncheon (Almaraai, Jordan) to 45 mg/100g in the stewed pork (Ma Ling, China). Total saturated fatty acid (SFA) concentration in the analyzed samples varied from 598 mg/100g to 14,666 mg/100g. The most predominant SFA was 16:0, followed by 18:0. Total monounsaturated fatty acid concentration varied between 813 mg/100g to 20,218 mg/100g. The major monounsaturated fatty acid was 18:1 in the analyzed samples. Canned chicken samples had a higher ratio of PUFA : SFA with value of 0.37–1.24 compared with canned beef and mutton between 0.06 to 0.14, and pork between 0.23 to 0.45. Long chain (LC) n-3 PUFA content was 18 to 57 mg/100g for the canned beef compared with value of  $42 \pm 7$  mg/100g for fresh lean beef, 54 to 72 mg/100g for canned lamb/mutton compare with  $53 \pm 6$  mg/100g for fresh lamb/mutton, 18 to 191 mg/100g for canned pork compared with  $13 \pm 2$  mg/100g for fresh pork, and 10 to 69 mg/100g for canned chicken compared with  $18 \pm 4$  mg/100g for fresh chicken. The fatty acid concentrations varied quite significantly between brands and countries in all of the analyzed samples. This may be due to the different fat contents and fatty acid compositions of animal diets, and the different amounts of visible fat trimmed off. The data obtained could contribute to the Australian food composition database to provide information for further research and for the interest of the general public.

1. National Food Authority. (1995) Composition of Foods, Australia. Australian Government Publishing Service, Canberra, Australia.