

THE FATTY ACID COMPOSITION OF FISH CAUGHT IN BASS STRAIT

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We have reported previously that fish caught off the north-west coast of Australia (latitude 17°S) contained a high level of ω 6 fatty acids (O'Dea and Sinclair 1981). This unexpected finding prompted us to examine the fatty acid composition of fish caught locally (Bass Strait). We have analysed 25 common species and have shown that 16 contained between 1 and 5% arachidonic acid and the other nine between 5 and 10%. The mean ω 6 to ω 3 ratio from our previous study (tropical fish) was 0.63 (range 0.38-0.93), compared with a mean ratio of 0.21 (range 0.08-0.81) for the locally caught fish. These preliminary results indicate that local fish (latitude 37°S) contained lower levels of ω 6 fatty acids than tropical fish, but more than fish from the Northern Hemisphere (latitudes above 30°N).

In comparing our results with other data for Australian fish (Pearson 1978; R.A. Gibson, personal communication 1983) we have noted that for some species there appear to be marked differences in the fat content and fatty acid composition. In searching for the reasons for these differences we have identified several areas where variation could occur. Firstly, since there are a number of fish which are known by several different names, the correct identification of fish is critical. We have stored muscle samples from each specimen for later identification by isoelectric focussing (Hamilton 1982). Secondly, we have found significant between-fish variations in fatty acid composition (e.g. Leather Jacket) and in fat content (e.g. Yellowtail). Thirdly, we have shown that there is a difference in the fat content and fatty acid composition of samples in which flesh only or flesh plus skin and subcutaneous fat was analysed. R.A. Gibson (personal communication 1983) analysed the latter type of samples, whereas our analyses have all been conducted on flesh only; Pearson (1978) did not state what portion was analysed. In conclusion we believe that standardised procedures should be adopted: that analyses should be conducted on samples from representative sites on fish (and that if skin and subcutaneous fat contribute to the analysis this should be stated), that the fish should be identified in a standard manner, and that fish size and the date and location of the catch be recorded. This is particularly important when the values of such studies will be incorporated into Australian food tables.

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