POTENTIAL SOURCES OF POLYUNSATURATED FATTY ACIDS

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In recent years, polyunsaturated fatty acids, particularly arachidonic (AA), eicosapentaenoic (EPA), and docosahexaenoic (DHA), have been attracting great attention from medical specialists [1]. We have previously reported the isolation of these acids from the wastes of insulin production and their amounts in this source [2]. It is known that marine sources are rich in polyunsaturated fatty acids, particularly those of the ω-3 type, and we have therefore studied the oils and fats of a number of the commercial fish of our country.

Below we give the percentages of the main higher fatty acids in the oils of cod and herring, and also for comparison in the lipids from insulin production wastes:

Fatty acid	Cod liver oil	Herring oil	Lipids from insulin production wastes
Palmitic	13.7	12.0	16.0
Palmitoleic	15.5	17.7	6.0
Oleic	34.8	48.6	45.0
Linoleic	8.6	3.1	19.0
Linolenic	5.5	2.4	2.7
Arachidonic	0.5	0.7	5.2
Eicosapentaenoic	9.0	4.4	1.0
Docosapentaenoic	0.7	0.8	1.0
Docosahexaenoic	1.9	8.8	0.4

As we see, herring oil may prove to be a promising source for the production of DHA and EPA, and cod liver oil for EPA. However, with respect to their arachidonic acid contents the oils investigated are considerably inferior to the lipids represented by the wastes from insulin production. Analysis of the fatty acids present in the oils was carried out by the GLC method [2] after the alkaline hydrolysis of the oils. EPA and DHA were isolated from the fish oils in the following way: A mixture of higher fatty acids was obtained by the alkaline hydrolysis of the oil [3] followed by extraction with hexane. The EPA and DHA were obtained individually from this mixture by adsorption chromatography on silica gel impregnated with silver nitrate [2]. The ^{13}C NMR spectra and refractive indices of the corresponding acids isolated from the insulin production wastes [2].

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All-Union Scientific-Research Institute of the Technology of Blood Substitute and Hormone Preparations, Moscow. Translated from Khimiya Prirodnykh Soedinenii, No. 4, p. 592, July-August, 1988. Original article submitted November 9, 1987; revision submitted February 18, 1988.

 0009-3130/88/2404-0506 $12.50