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Научно-исследовательский институт продовольствия

Химический состав пищевой продукции и базы данных химического состава пищевых продуктов (введение)

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Дата: 15 февраля 2017
Место: г.Минск, Республика Беларусь

Актуальность гармонизированной разработки национальных таблиц ХС ПП

- Пищевая ценность пищевых продуктов может варьировать в широких пределах (почва, сорта, технология выращивания, климат и т.д.)
- Имеет значение биодоступность нутриентов
- Различия в национальной структуре потребления
- Возможность сопоставления таблиц ХС ПП в различных странах

Таблицы ХС ПП

До 2000

после 2000

Этапы создания БД ХС ПП

Источники данных

- Собрать и оценить качество первичных аналитических данных
- Проверить их на соответствие критериям

Архивная БД

- Ввод отобранных данные в БД

Референсная БД

- Аггрегация, расчет, оценка, проверка, сравнение данных
- Внесение недостающих данных

Пользовательская БД

- ОпубликованиеБД в печатном или электронном виде

Структура таблиц ХС ПП

Требования к таблицам ХС ПП

- Репрезентативные данные, соответствующие структуре потребления в стране
- Аналитические данные
- Максимальный охват видов ПП
- Максимальный охват нутриентов
- Стандартизованный формат данных
- Указание источника данных

Критерии включения ПП в таблицу ХС ПП

1 Приоритет

- ✓ Являются основными источниками нутриентов;
- ✓ Производятся в стране;
- ✓ Относятся к различным группам: сырые, приготовленные, переработанные, многокомпонентные, блюда общественного питания и национальной кухни

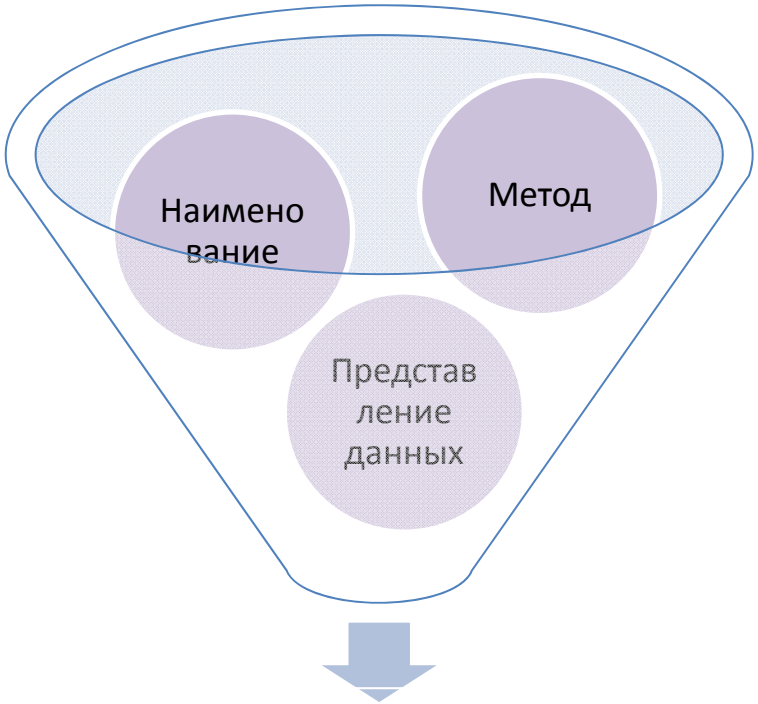
2 Приоритет

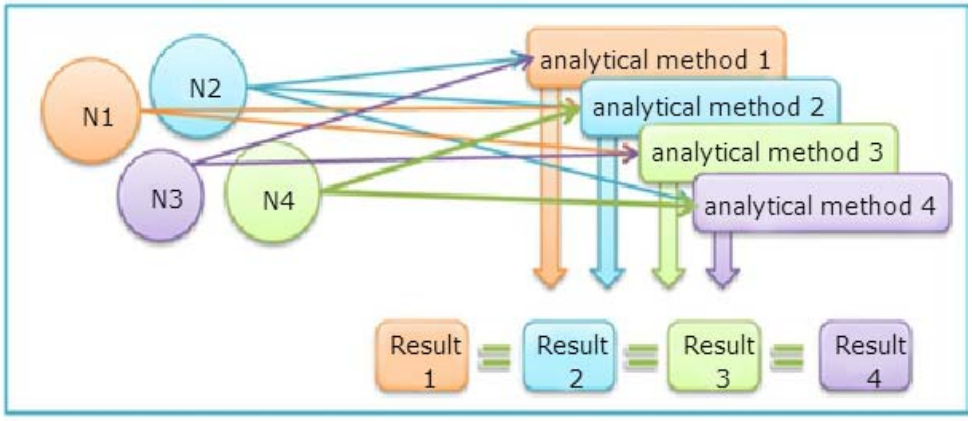
- ✓ Употребляется отдельными группами населения

Food group code	Food group name
01	Cereals and their products
02	Starchy roots, tubers and their products
03	Legumes and their products
04	Vegetables and their products
05	Fruits and their products
06	Nuts, seeds and their products
07	Meat, poultry and their products
08	Eggs and their products
09	Fish and their products
10	Milk and their products
11	Fat and oils
12	Beverages
13	Miscellaneous

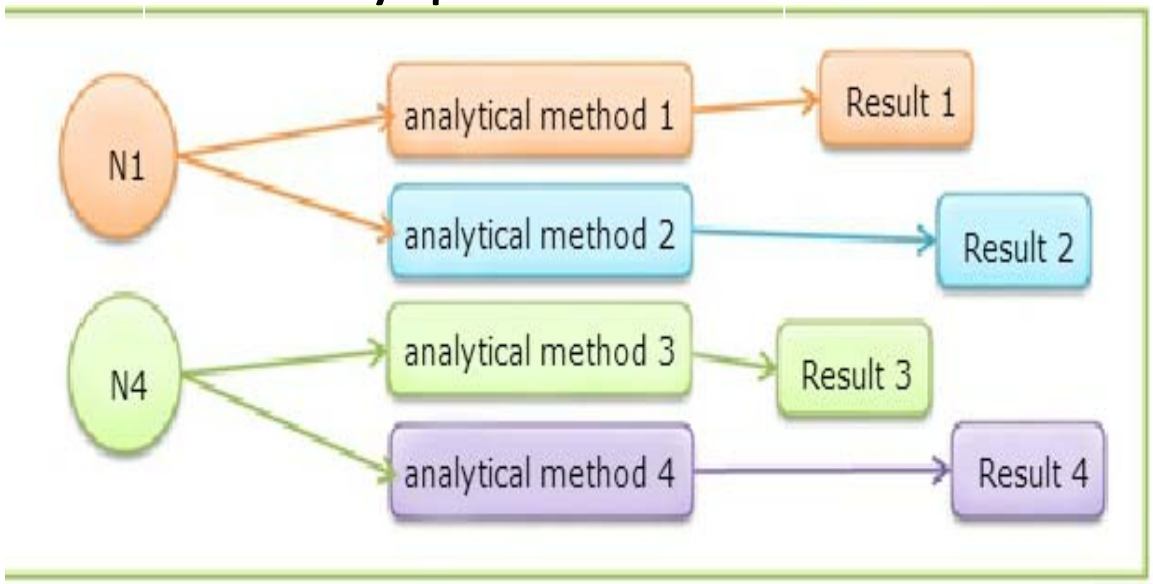
A.01.000001	Grains and grain-based products
A.01.000002	Grains as crops
A.01.000003	Wheat grain crop
A.01.000004	Barley grain (Crop)
A.01.000005	Corn grain (Crop)
A.01.000006	Rye grain (Crop)
A.01.000007	Spelt grain (Crop)
A.01.000008	Buckwheat grain (Crop)
A.01.000009	Millet grain (Crop)
A.01.000010	Oats, grain (Crop)
A.01.000011	Rice (Crop)
A.01.000012	Other grains (Crop)
A.01.000013	Grains for human consumption
A.01.000014	Wheat grain
A.01.000015	Wheat germ
A.01.000016	Wheat grain, Durum
A.01.000017	Wheat grain, soft
A.01.000018	Bulgur wheat
A.01.000019	Barley grain
A.01.000020	Barley grain, whole
A.01.000021	Barley, pearled
A.01.000022	Corn grain

Нутриенты





Нутриент



FOLATE

Total folate: food folate + folic acid (determined by microbiological assay)
Sum of folate vitamers: determined by HPLC it includes mostly: tetrahydrofolate, 5- methyltetrahydrofolate, 5-formyltetrahydrofolate, 10 formylfolic acid, 10-formyldihydrofolate and folic acid.
Folic acids: Synthetic folic acid used in fortification
Dietary folate equivalent: food folate + 1.7 x synthetic folic acid
Food folate: naturally occurring food folates (determined by microbiological assay)

Tagname	Description
ENERC	energy, total metabolizable; calculated from the energy-producing foo components
WATER	water
CA	calcium
AAE8	amino acids, total essential (8)
HIS	histidine
XN	conversion factor to calculate total prot
FATCE	fat, total; derived by analysis using con
FAT	fat, total
FAT-	fat, method unknown or variable

MORE INFORMATION

Tagname examples (from Klensin et al., 1989)

< **F16D0** >	fatty acid 16:0 Unit: g Synonyms: palmitic acid; hexadecanoic acid Tables: USDA 163, SFK, NE, EA, PRC, FRN, DAN, SWD
< **F17D0** >	fatty acid 17:0 Unit: g Synonyms: margaric acid; heptadecanoic acid Tables: USDA 653, SFK, PRC, FRN, DAN
< **F18D0** >	fatty acid 18:0 Unit: g Synonyms: stearic acid; octadecanoic acid Tables: USDA 614, SFK, NE, EA, PRC, FRN, DAN, SWD
< **F20D0** >	fatty acid 20:0 Unit: g Synonyms: arachidic acid; eicosanoic acid Tables: USDA 615, SFK, PRC, FRN, DAN, SWD
< **F22D0** >	fatty acid 22:0 Unit: g Synonyms: behenic acid; docosanoic acid Tables: USDA 624, SFK, PRC, FRN, DAN, SWD
< **F23D0** >	fatty acid 23:0 Unit: g Synonyms: tricosanoic acid Tables: FRN

www.fao.org/infoods/infoods/standards-guidelines/food-component-identifiers-tagnames/en/

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english français español

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International Network of Food Data Systems (INFOODS)

Tagnames for Food Components

This list of INFOODS Food Component Tagnames has been prepared from John C. Klensin, Diane Feskanich, Victor Lin, A. Stewart Truswell, David A. T. Southgate, Identification of Food Components for INFOODS Data Interchange, Tokyo: United Nations University, 1989.

The list was updated as new tags are assigned or definitions are clarified until 2007.

AAA ..... ENER- (aromatic amino acids to energy)

ERGCAL... FATRN (ergocalciferol to trans fatty acids)

FD .....PRO (fluoride to proline)

PROA .....ZN (total protein to zinc)

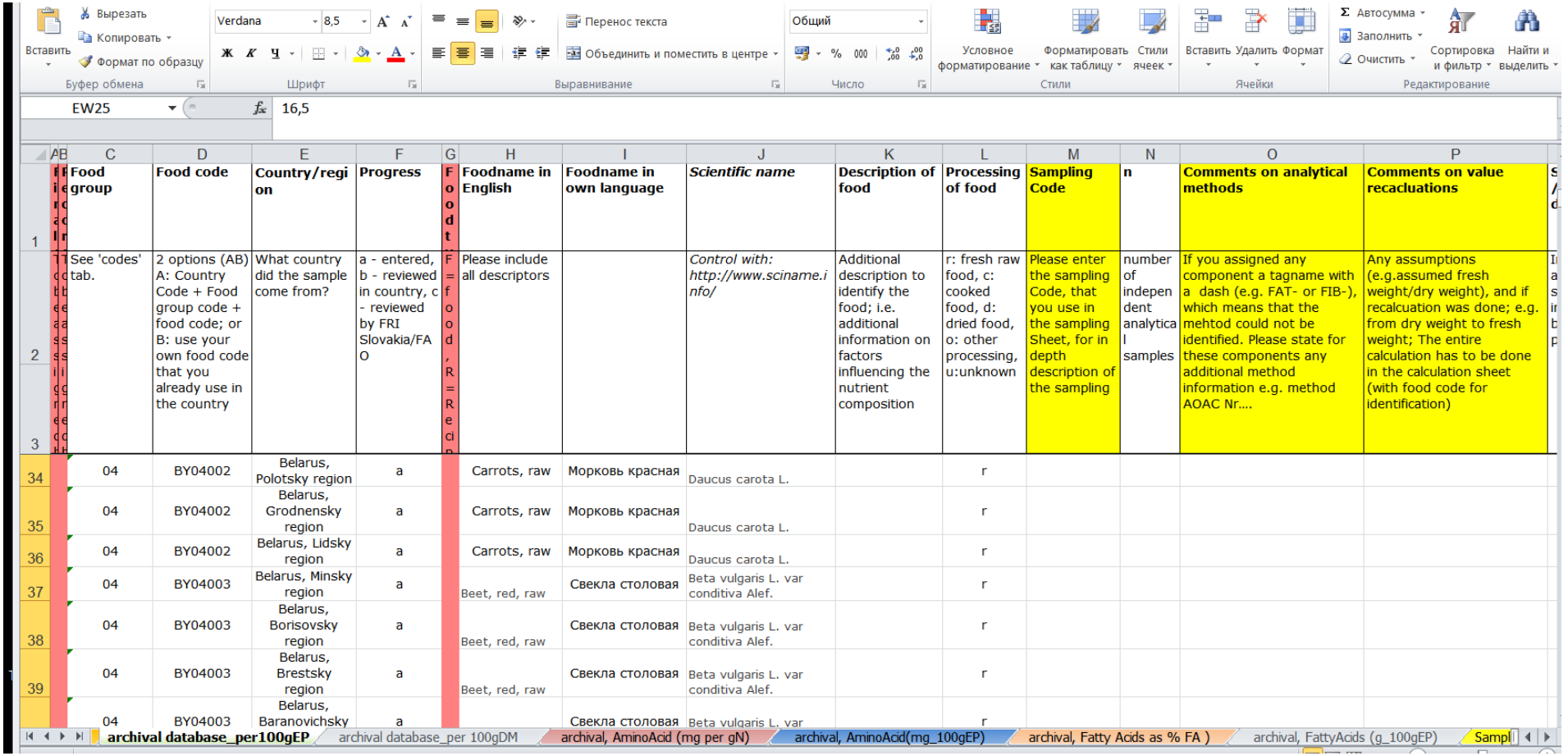
AAAN .... VALP (Derived food components)

New tagnames since 2007

- 130 new tagnames are proposed to be added to the existing tagnames (COMING SOON)
- Coming soon: consolidated list of all tagnames (excel format)
- 156 new tagnames were added to the existing tagnames (April 2010).
- 142 new tagnames were added to the existing tagnames (October 2008)

Reports

Архивная БД ХС ПП



EW25 | 16,5

	C	D	E	F	H	I	J	K	L	M	N	O	P
1	**Food group**	**Food code**	**Country/region**	**Progress**	**Foodname in English**	**Foodname in own language**	***Scientific name***	**Description of food**	**Processing of food**	**Sampling Code**	**n**	**Comments on analytical methods**	**Comments on value recacluations**
2	See 'codes' tab.	2 options (AB) A: Country Code + Food group code + food code; or B: use your own food code that you already use in the country	What country did the sample come from?	a - entered, b - reviewed in country, c - reviewed by FRI Slovakia/FAO	Please include all descriptors		*Control with: http://www.sciname.info/*	Additional description to identify the food; i.e. additional information on factors influencing the nutrient composition	r: fresh raw food, c: cooked food, d: dried food, o: other processing, u:unknown	Please enter the sampling Code, that you use in the sampling Sheet, for in depth description of the sampling	number of independent analytical samples	If you assigned any component a tagname with a dash (e.g. FAT- or FIB-), which means that the mehtod could not be identified. Please state for these components any additional method information e.g. method AOAC Nr....	Any assumptions (e.g.assumed fresh weight/dry weight), and if recalcuation was done; e.g. from dry weight to fresh weight; The entire calculation has to be done in the calculation sheet (with food code for identification)
34	04	BY04002	Belarus, Polotsky region	a	Carrots, raw	Морковь красная	Daucus carota L.		r				
35	04	BY04002	Belarus, Grodnensky region	a	Carrots, raw	Морковь красная	Daucus carota L.		r				
36	04	BY04002	Belarus, Lidsky region	a	Carrots, raw	Морковь красная	Daucus carota L.		r				
37	04	BY04003	Belarus, Minsky region	a	Beet, red, raw	Свекла столовая	Beta vulgaris L. var conditiva Alef.		r				
38	04	BY04003	Belarus, Borisovsky region	a	Beet, red, raw	Свекла столовая	Beta vulgaris L. var conditiva Alef.		r				
39	04	BY04003	Belarus, Brestsky region	a	Beet, red, raw	Свекла столовая	Beta vulgaris L. var conditiva Alef.		r				
	04	BY04003	Belarus, Baranovichsky	a		Свекла столовая	Beta vulgaris L. var		r				

archival database_per100gEP | archival database_per 100gDM | archival, AminoAcid (mg per gN) | archival, AminoAcid(mg_100gEP) | archival, Fatty Acids as % FA) | archival, FattyAcids (g_100gEP) | Sampl

Архивная БД – источники данных

Пролин proline	МВИ МН 1363-2000	876,2	912,8	894,5 ± 197,9	983,4	1021,4	1002,4 ± 221,7
Валин valine		1088,0	971,5	1029,7 ±	1139,7	1113,7	1126,7 ±
Метионин methionine		442,8	433,				
Лейцин leucine		935,5	895,				
Изолейцин isoleucine		1613,2	1676				
Фенилаланин phenylalanine		879,7	838,				
Цистеин cysteine		281,1	256,				
Лизин lysine		1722,1	1788,				
Гистидин histidine		678,4	691,				
Тирозин tyrosine		719,4	652,				

Food Chemistry 126 (2011) 78–84

Contents lists available at ScienceDirect

Food Chemistry

journal homepage: www.elsevier.com/locate/foodchem

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FOOD CHEMISTRY

Marine and farmed fish in the Polish market: Comparison of the nutritional value

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ARTICLE INFO

Article history:
Received 20 May 2010
Received in revised form 25 August 2010
Accepted 18 October 2010

Keywords:
Marine and farmed fish
Lipids
Protein
Fatty acids composition

ABSTRACT

The proximate composition and fatty acids profiles of the muscle tissues of nine fish species that are popular on the Polish market were examined. The nine studied fish species were: Baltic fish (cod, herring, salmon), fish farmed in Poland (carp, trout), oceanic fish imported from China (walleye pollock, sole), and farmed fish imported from Vietnam and China (sutchi catfish, tilapia). The lowest lipid content (below 0.1%) was noted in the muscle tissues of Baltic cod and walleye pollock caught in the Pacific. The muscle tissue of walleye pollock also had the lowest protein content (12.2 ± 2.0%). The highest lipid content was noted in the muscle tissues of Baltic salmon (13.1 ± 2.4%). The highest percentage content of eicosapentaenoic (C20:5 n – 3 – EPA) and docosahexaenoic (C22:6 n – 3 – DHA) acids (over 40%) was noted in the fat extracted from the oceanic fish and Baltic cod. However, due to the low fat content, the concentrations of EPA + DHA in these fish species and in imported farmed fish expressed in mg/100 g of muscle tissues are the lowest and range on average from 248 ± 57 mg/100 g (sutchi catfish) to 2074 ± 1254 mg/100 g (sole). This is why the consumption of these fish species has no significant meaning for coronary heart disease prevention. Consumers with symptoms of cardiovascular diseases should include the following fish species, which have high concentrations of EPA + DHA: Baltic salmon (3807.2 ± 666.3 mg/100 g); Polish farmed trout (1804.0 ± 279.2 mg/100 g); and Baltic herring (940.9 ± 306.6 mg/100 g) in their diets. However, the consumption of Baltic salmon must be limited on account of the levels of persistent organic pollutants found in it.

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1. Introduction

The nutritional properties of fish and fish products render them valuable foodstuffs that are beneficial for human health. In comparison to other European countries, the per capita consumption of fish and fish products in Poland is low (11.7 kg live weight/per capita) (Szostak, Kuzebski, & Budny, 2007). This stems from poor marketing and a lack of adequate information for consumers regarding the nutritional values of these foodstuffs.

The nutritional benefits of fish stem for the most part, from its exceptionally advantageous fatty acids profile. In recent years, increasing attention has been focused on the significance of polyunsaturated fatty acids (PUFAs) in human nutrition, particularly

LC-PUFAs can be classed according to the position of the first double bond in the n – 3 and n – 6 family. EPA and DHA belong to the n – 3 family of fatty acids. Specific interest in n – 3 acids began to grow after researchers observed that the Inuit people from Greenland rarely suffered from cardiovascular diseases (CVD). The Inuit diet contained mainly fat fish and sea animals which have, among other qualities, high levels of EPA and DHA (Connor, 2000). The data obtained in epidemiological and experimental studies supported the beneficial activity of n – 3 acids in the prevention of CVDs. In 2002, the American Heart Association (AHA) issued a declaration approving the use of n – 3 acids in both the primary and secondary prevention of CVDs (Kris-Etherton, Harris, & Appel, 2002). EPA and DHA display several properties

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