



UNIVERSITETI BUJQËSOR I TIRANËS
AGRICULTURAL UNIVERSITY OF TIRANA

ALBANIAN FOOD COMPOSITION TABLE



Prepared by: Dr. Luziana Hoxha

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Preface

This edition of the Albanian Food Composition Table illustrates the Albanian foods and values of components based on previous work on “BUILDING A NATIONAL ALBANIAN FOOD COMPOSITION DATABASE”, in the frame of the project “Development Support Programme of the Slovak Republic in Food Composition Area for Central and Eastern Europe“, the agreement between National Agricultural and Food Centre - Food Research Institute, the Slovak Republic and the Agricultural University of Tirana, Albania.

This collaboration started in June 2018, when the Agricultural University of Tirana (AUT) and the National Agricultural and Food Centre - Food Research Institute (NPPC-VÚP) in Bratislava signed a Cooperation Agreement in the framework of the project “Development Support Programme of the Slovak Republic in Food Composition Area for Central and Eastern Europe“. This cooperation aimed to build up a national food composition database in Albania, through the collection and documentation of food composition data in the software Daris 1.1.8 of 75 foods produced and sold in Albania (a few from Kosovo).

Information about food composition is of value to different end users in the health, agriculture, and trade sectors. The data may be used in research studies of the effects of diets on health, reproduction, growth, and development. Also, food composition tables (FCT) may be used for devising diets with specific nutrient compositions in clinical practice, in the formulation of ration scales, and the devising of emergency food supplies. Nationally and internationally, food composition data are used for the assessment of the nutritional intake of individuals and populations. Food composition data provides the foundations for the development of education programs on choosing healthy diets. As part of guidance to consumers, many governments have implemented the nutrition labeling of foods, etc.

The selected foods for the FCT were chosen as those most often consumed, produced, and traded in Albania (a few of them from Kosovo), which may influence other cultures, etc. Albania as part of the Mediterranean is known for its healthy and tasty food that could offer. The majority of Albanians eat fresh vegetables and fruits, cereals (wheat, maize, and rice), milk, livestock, and olives or olive oil. While the prepared or cooked food follows the seasons and the tradition of the region in which it is grown, mainly for dairy products (cheese, yogurt, butter), cereals products (bread, pasta, trahana), fruit and vegetables products (pickles, dried fruits, fruit juices, fruit syrups), meat products (salami, suxhuk), olive oil and wine.

The Agricultural University of Tirana has documented the following information: reference, organization, food values including sampling and analytical method (in case of analytical data, from scientific articles or laboratory test reports), stored original sources and delivered scanned documents to the National Agricultural and Food Centre for checking. The same procedure was followed in the case of data collected from food labels and the information provided by producers. Food documented were 20% primary foods, 7% pre-prepared foods, and 73% processed foods, provided such data by food companies in Albania (a few from Kosovo) AUT representatives, contacted them, as well as other originations for sharing their data, and were recorded the producers which produced the data, and the list of ingredients of composite food products (if relevant) by using the software Daris 1.1.8.

The edition also includes recipes and food composition data for 5 Albanian traditional dishes. Nutrient values of cooked foods (mainly boiled foods) were calculated by the National Agricultural and Food Centre - Food Research Institute in the Slovak Republic by using the nutritional software Alimenta 4.3e.

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Food documented

The present edition includes 75 foods (wheat, wheat flour, corn flour, pasta, starch, canned corn, corn for popcorn, oats, rice, beans, lentils, peas frozen, pickles, figs dried, persimmons dried, apple raw, red beetroot, jujube jam, raw tomato, tomato concentrate, some fruit juice, prunes dried, almonds, walnuts, pistachios, peanuts, sausages, red meat raw, chicken meat raw, canned meat, eggs, canned tuna, fish and shellfish, goat cheese, yogurt, yogurt with fruits, milk, margarine, butter, sunflower oil, wine, vinegar, beer, iced tea, water, coffee, honey, syrup, ketchup, etc.), from which 20% were primary foods (15), 7% pre-prepared foods (5), and 73% were processed foods (55).

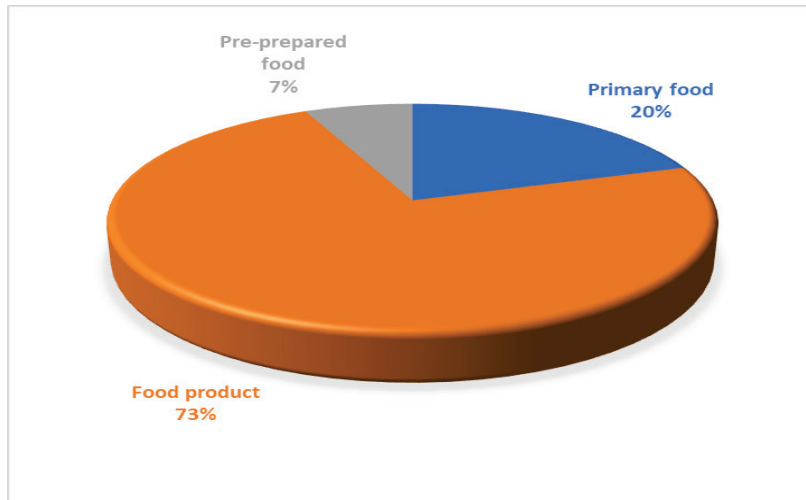


Figure 1: The amount of documented food: primary, pre-prepared and food products

Food groups

The foods have been classified into the following food groups, and each group was documented as following:

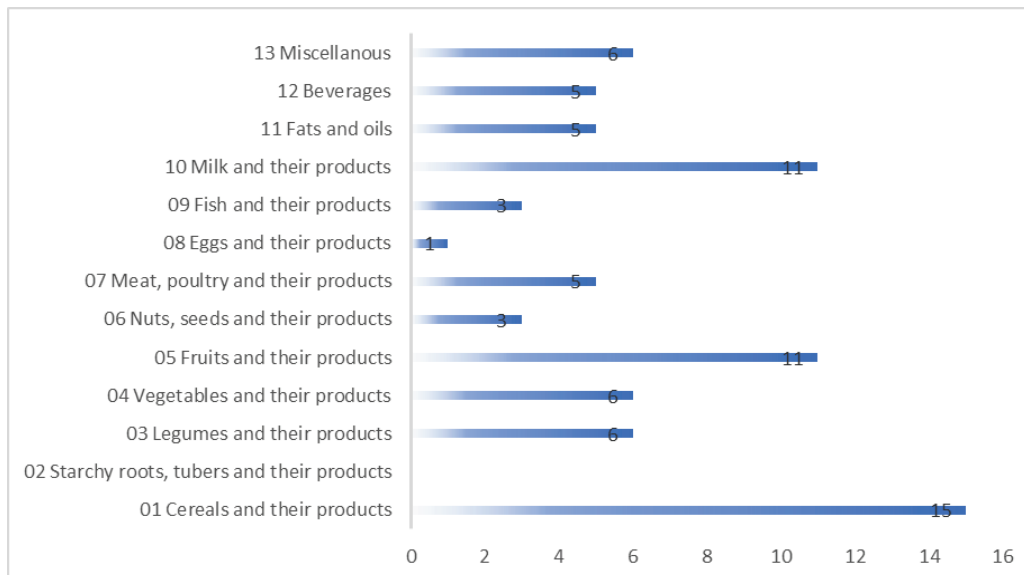


Figure 2: Number of foods documented per each food group

The Original Food Codes are composed of the food group code and the ordinal number within food group. Foods are listed in FCT according to food group code and identifiable by Original Food Code; Albanian Food Name, generic and/or English Food Name, generic.

Food components

The required range of components was at least 5 components per each food, including: water (or dry matter), protein, fat, carbohydrates, sugars, fibre, ash, minerals, vitamins, fatty acids, etc. For this FCT, a total list of 48 components were recorded, consisting of proximate (9), minerals (9), vitamins (11), and fatty acids (19). For the

75th foods were achieved a total of 2219 records, comprised of 706 proximate records (for 75 foods), 329 minerals records (for 55 foods), 536 vitamins records (for 60 foods), and 648 fatty acids records (for 30 foods) (Figure 3).

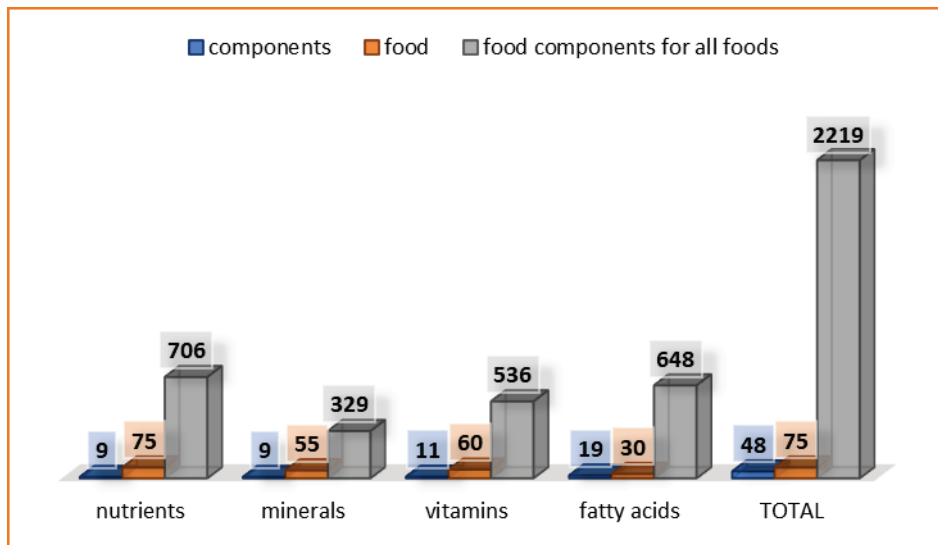


Figure 3: Component registered for the documentet food

Data documentation was made in compliance with technical requirements (EuroFIR, thesauri).

Food sources

For the documentation was used in a total of 67 citations (Figure 4). The sources of references were based on USDA (3 citations), the Greek food database (1 citation), other sources were from Ph.D. thesis (4 citations), scientific articles (10 citations), test reports (14 citations), food labels (35 citations), and analytical and food label were an almost equal number of sources used.

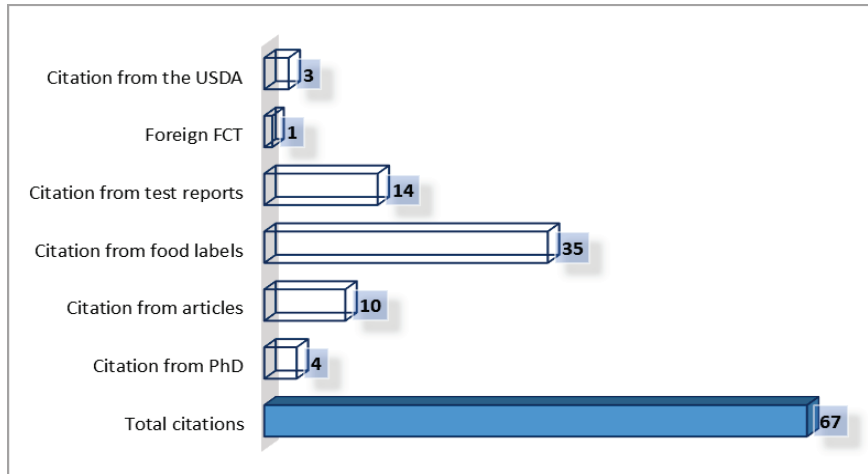


Figure 4: Sources of food composition data

List of references - sources of data used for documentation were mostly from Albania (a few from Kosovo). Collected Albania food composition data were supplemented by USDA and Greek food data, with the intend not to have missing values, for some data that were not available, or when not existed reliable sources from which would be derived data, and in such cases they were left blank.

Here is included a list of organizations from which were collected and documented data of food produced, sold, and mostly consumed in Albania (a few in Kosovo) (Annex III). Such organizations were contacted and invited to collaborate, and asked to provide food composition data. AUT representativ had traveled and collected data from food business operators, laboratories, etc., from different cities in Albania (Tirana, Durres, Kavaja, Gjirokaster, Fushe-Kruje, etc.) and Kosovo (Rahovec, Pristina, Peja, etc.). Beside retrieving the data of interest for food, an added value of such meetings was creating networks and raising awareness on food data composition (more info is at Annex III).

Definition and expression of nutrients

All values, including for beverages and other liquids, are presented per 100 g edible portion. The values of nutrients have been standardized and are expressed in a fixed maximal number of decimal points, i.e. no decimal points were added but values with higher decimal points were truncated to the maximal number of decimal points.

The reported values are expressed as average values where possible derived from foods with the same/similar description that have been compiled in the database.

Table 1: Nutrients, units and corresponding EuroFIR component code (per 100 g edible portion)

Component name in English	Unit	EuroFIR component code
Energy	kJ, kcal	ENERC
Water	g	WATER
Protein, total	g	PROT
Fat, total	g	FAT
Carbohydrate, total	g	CHOT
Carbohydrate available by difference	g	CHO
Sugars	g	SUGAR
Lactose	g	LACS
Fibre, total dietary or if missing then [crude fibre]	g	FIBT
Ash	g	ASH
Alcohol	g	ALC
Calcium	mg	CA
Iron	mg	FE
Magnesium	mg	MG
Phosphorus	mg	P
Potassium	mg	K
Zinc	mg	ZN
Copper	mg	CU
Sodium	mg	NA
Manganase	mg	MN
Sodium chloride	g	NACL
Vitamin C	mg	VITC
Thiamin	mg	THIA
Riboflavin	mg	RIBF
Niacin	mg	NIA
Vitamin B6	mg	VITB6
Folates	mcg	FOL
Vitamin A (expressed in retinol activity equivalents)	mcg	VITA
Retinol	mcg	RETOL
Beta-carotene equivalents or [beta-carotene]	mcg	CARTB
Vitamin E	mg	VITE
Vitamin D	mcg	VITD
Fatty acids, total	g	FACID
Fatty acids, total saturated	g	FASAT
Lauric acid C12:0	g	F12:0
Myristic acid C14:0	g	F14:0
Pentadecylic acid C15:0	g	F15:0
Palmitic acid C16:0	g	F16:0
Margaric cid C17:0	g	F17:0
Stearic acid C18:0	g	F18:0
Arachidic acid C20:0	g	F20:0
Behenic acid C22:0	g	F22:0
Lignoceric acid C24:0	g	F24:0
Fatty acids, total monounsaturated	g	FAMS
Myristoleic acid C14:1n-5	g	F14:1CN5
Palmitoleic acid	g	F16:1CN7
Heptadecenoic acid C17:1	g	F17:1
Gadoleic acid C18:1	g	F18:1
Oleic acid	g	F18:1CN9
Nonadecenoic acid C19:1	g	F19:1
Eicosenoic acid C20:1	g	F20:1

Fatty acids, total polyunsaturated	g	FAPU
Linoleic acid C18:2	g	F18:2
Linolenic acid C18:3	g	F18:3
Alpha-linolenic acid C18:3n-3	g	F18:3N3
Eicosatetraenoic acid C20:4	g	F20:4
Fatty acids, total unsaturated	g	FAUNSAT
Cholesterol	mg	CHORL

Energy (kJ, kcal)

The metabolizable energy values of all foods are given in both kilojoules (kJ) and kilocalories (kcal). The energy values have been calculated based on protein, fat, available carbohydrates, fibre, and alcohol values by applying the energy conversion factors shown in Table 2.

Table 2: Metabolizable energy conversion factors

	kJ/g	kcal/g
Protein	17	4
Fat	37	9
Available carbohydrate	17	4
Fibre	8	2
Alcohol	29	7

Sum of proximates

Sum of proximates = WATER + PROT + FAT + ASH + CHOT + ALC

Water (g)

Water values are from different sources and may be derived from different drying methods.

Dry matter (g)

DRYMAT = 100 - WATER

Protein, total (g)

The protein content was calculated by multiplying the nitrogen values with the nitrogen conversion factors of Jones. If no specific factor is given, the general nitrogen conversion factor was used 5.7 (Ref. AL00006), lactoscan measurement (ref. AL00014), 6.25 (Ref. AL00013). In the case of food products whose protein values are from food labels, we have assumed that general nitrogen conversion factor 6.25 was applied based on Regulation (EU) No. 1169/2011 of the European Parliament and the Council on the provision of food information to consumers.

Fat, total (g)

The fat value (which includes triglycerides, phospholipids, sterols, and related compounds) for the foods was derived either by continuous extraction with solvent (Soxhlet method). For all foods except cereals, Soxhlet values are comparable with other fat determination methods and were therefore used without precaution. However, Soxhlet values (FATCE) were avoided for cereals because for this group this method results in lower fat values if no previous acid extraction was performed.

Carbohydrates (g)

As few analytical data were available, it was decided to express carbohydrates as 'carbohydrates total by difference' CHOT and 'carbohydrates available by difference' CHO, where the following formulas were applied:

CHOT = 100 - (Water + Protein + Fat + Alcohol + Ash)

CHO = 100 - (Water + Protein + Fat + Alcohol + Ash + Fibre)

In cases where crude fibre was used in the calculation, the value is of lower quality.

In the case of having own only SUGAR value and borrowing FIBT = 0 and not knowing ASH value, was assumed SUGAR = CHO = CHOT, but only for some food from food groups: Milk and their products, Meat and their products.

Dietary fibre (g)

The most recommended method for total dietary fibre determination is the AOAC Prosky method. This is a mixture of nonstarch polysaccharides, lignin, resistant starch, and resistant oligosaccharides. Most of the dietary fibre values were borrowed from foreign food composition tables.

In a few cases, only values for non-starch polysaccharide (also called Englyst fibre), Southgate fibre, or for a mixture of non-starch polysaccharides, lignin, and some resistant starch were available. They were taken as an approximation of total dietary fibre as determined by the AOAC Prosky method.

According to values documented in Daris, only fig fresh [4.37 g/100 g] and fig dried [8.8 g/100 g] have crude fibre values, according to ref. AL00013 & AL00033. Other dietary fibre values are from food labels and borrowed from USDA, and for them, we assumed that they are total dietary fibre.

Alcohol (g)

The values of % alcohol by volume to alcohol in g per 100g of the edible portion were calculated according to FAO/INFOODS Guidelines for Converting Units, Denominators and Expressions, version 1.0., FAO, Rome, 2012.

Ash (g) and minerals (mg or mcg)

Ash and selected mineral values are included: calcium, iron, magnesium, phosphor, potassium, sodium, zinc, and copper. Most of the ash and mineral values were borrowed from foreign food composition tables.

Fatty acids

Fatty acids (FA) expressed as % of total fatty acids were calculated to individual FA as g per 100 g edible portion according to FAO/INFOODS Guidelines for Converting Units, Denominators, and Expressions, version 1.0., FAO, Rome, 2012. It was needed to include the appropriate FA conversion factor in the calculation according to Table 3.

Table 3: Fatty acids conversion factors (XFA)

Food	XFA	Food	XFA
wheat, barley, rye		beef	
wholegrain	0,72	lean	0,916
flour	0,67	fat	0,953
bran	0,82	lamb, take as beef	
oats, whole	0,94	pork	
rice, milled	0,85	lean	0,910
milk and milk products	0,945	fat	0,953
eggs	0,83	poultry	0,945
fats, oils (all except coconut)	0,956	brain	0,561
coconut oil	0,942	heart	0,789
vegetables and fruits	0,82	kidney	0,747
avocado	0,956	liver	0,741
nuts	0,956		

Also, we assumed FAUNSAT = FAMS + FAPU.

In these food composition tables, fatty acids are not provided for all lists of foods, but only for those foods which have available fatty acids data, or food that have higher fat content.

Documentation, quality and source of data

For each food, the sources of the data are indicated by reference (bibliographic) codes, which are included in Annex I and the reference list is in Annex II. The data available in food composition tables correspond to Albania (a few of them Kosovo). There is a serious lack of analytical data, especially on vitamins and minerals. Therefore, most of these data were imputed from other sources (e.g. USDA).

Symbols and abbreviations used in the Table

Tr Trace
[] for alternative analytical method or expression, or low quality
blank missing value, i.e. no value could be found, but it does not mean that the value is zero

Cooked foods

The edition also includes recipe and food composition data for 5 Albanian traditional dishes. The Albanian traditional dishes were dolmas[1], lima beans dish[2], Jufka Dibre[3], qumështor[4] and pekmez[5]. Representatives of the Agricultural University of Tirana undertook to weight all ingredients and the final weight of the dish after cooking in the laboratory, and thus data were used for calculation. Retention and yield factors during technological treatment were considered in our calculations. Calculations were realised by the National Agricultural and Food Centre – Food Research Institute in the Slovak Republic, and composition data of these dishes were calculated by using **nutritional software Alimenta 4.3e**. Further details on traditional dishes preparation could be found in Annex IV and calculated food composition of traditional dishes in Annex V.

Recommendations for future work

High-quality food composition data are needed for many different areas such as treatment, prevention, and research on non-communicable diseases, micro-nutrient deficiencies, obesity and for food labeling, etc. In Albania, no food composition tables are published so far. For the Albanian Food Composition Table, efforts were made to increase the quality of the data many efforts to include analytical data for local foods, as well as other sources, with the aim that these data meet the needs of many sectors and professional users in Albania. Also, this publication includes traditional dishes, including their ingredients, cooking method and yield factor, and food composition of dishes. We recommend further efforts in the future for Albanian Food Composition Table enrichment.

Food Composition Table

-Nutrients

Food Group Code	Original Food Code	English Food Name, generic	Sum of proximates	ENERC (kJ) (calculated)	ENERC (kcal) (calculated)	WATER (g)	PROT (g)	FAT (g)	CHOT (g)	CHO (g)	SUGAR (g)	Lactose (g)	FIBT (g)	ASH (g)	ALC (g)
01	AL01001	Wheat flour	100	1460	343	13,4	10,6	0,8	74,7	72,0	0,27		2,7	0,52	0
01	AL01002	Maize flour	100	1480	351	12,8	7,57	3,91	74,9	67,6	0,6		7,3	0,78	0
01	AL01003	Rye flour, wholemeal	100	1270	302	13,2	9,37	1,52	74,6	50,8	2,31		23,8	1,28	0
01	AL01004	Wheat bread, white	100	995	235	35,5	7,16	0,26	55,7	46,5	5		9,2	1,39	0
01	AL01005	Maize bread	100	1000	237	40,8	5,39	2,19	50,6	47,0			3,6	0,99	0
01	AL01006	Rye bread	100	1100	259	31,5	7,06	0,95	58,5	52,7	3,85		5,8	2,03	0
01	AL01007	Wheat common	100	1400	333	12	13,2	2,5	70,6	57,9	0,41		12,7	1,65	0
01	AL01008	Bulgur, dry	100	1380	328	9	12,3	1,3	75,9	57,6	0,4		18,3	1,51	0
01	AL01009	Trahana, traditional product, wheat based	100	1500	355	10,7	13	3	70	68	0,25		1,9	3,66	0
01	AL01010	Pasta, wheat, dried	98,5	1500	354	9,9	13	1,7	73	70	2,67		3,2	0,88	0
01	AL01011	Corn starch		1490	350		0,4	0,05	87	87	-		-	-	-
01	AL01013	Corn, for popcorn	100	1540	365	10,4	11	4,3	74	67	0,64		7,3	1,2	0
01	AL01014	Oats rolled	100	1600	379	6,6	17	8	66	54	1,45		11,6	2,89	0
01	AL01015	Rice, white, dried	101	1500	353	12,9	6,5	1,7	78,9	77,6			0,7	0,58	0
01	AL01016	Biscuits, with milk		1970	469		7,3	18,6	68,2	-					
03	AL03001	Chick-pea, grits	100	1450	344	11,1	18,7	3,57	64,8	54,0	10,8		10,8	1,87	0
03	AL03002	Chick-pea bread	98,6	1120	264	33	7,84	0,34	57,4						0
03	AL03003	Beans, red, canned	99,5	298	71	78,0	5,6	0,5	13,8	8,2	1,9		5,6	1,64	0
03	AL03004	Lentils, red, dried	97,8	1230	293	7,82	25,8	1,1	60,1	29,6	2		30,5	3	0
03	AL03005	Beans, white, dried	100	1288	304	22,1	23,8	2,50	46,5					5,10	
03	AL03006	Lentils, brown, dried	100	1354	319	20,0	24,9	2,10	50,2					2,85	
04	AL04001	Cucumbers, pickled	99,2	68	16	94,1	0,6	0,1	3,8	2,6	1,06		1,2	0,6	0
04	AL04002	Maize, canned	105	396	94	81,3	2,7	0,9	19,0	18,3			0,7	0,8	0
04	AL04003	Red beetroot, raw	98,2	143	34	90,0	1,09	0,1	7,13					1,74	
04	AL04012	Cabbage, white, pickle	100	107	25	91,9	1,11	0,2	4,72					2,07	
04	AL04013	Tomato, raw, fully mature	100	101	24	94	0,46	0,3	4,8					0,44	
04	AL04016	Peas, frozen	100	376	89	77,3	6,7	0,5	14,35					1,15	
04	AL04017	Tomato, concentrate, 100% (lab made)	100	317	75	80	1,28	0,5	16,25					1,97	

05	AL05001	Pomegranate, raw	100	354	84	77,9	1,67	1,17	18,7	14,7	13,7	4	0,53	0
05	AL05002	Fig, raw	100	533	126	66,1	1,48	0,55	31,0	26,6	25,8	4,37	0,95	0
05	AL05003	Fig, dried	100	1220	288	22,6	2,65	1,17	71,0	62,2	59,4	8,8	2,51	0
05	AL05004	Juice, apple, pasteurized	100	197	46	88,2	0,1	0,13	11,3	11,1	9,62	0,2	0,23	0
05	AL05008	Juice, orange, apricot, apple, pasteurized	99,8	208	49	86,7	0,38	0	12,6	11,2	12,3	1,33	0,2	0
05	AL05010	Juice, orange, carrot, lemon, pasteurized	100	183	43	89,1	0	0	11,0	10,6	10,6	0,4	0,25	0
05	AL05011	Prunes, dried	99,2	1100	259	30,9	2,2	1	63,9	56,8	38,1	7,1	1,16	0
05	AL05012	Apple, raw	100	264	62	83,8	0,3	0,2	14,8	14	14		0,88	
05	AL05013	Persimmon, dried	100	1079	254	36,1	1,31	0,38	61,4	58	58		0,85	
05	AL05014	Jujube, jam	100	1187	279	29,4	1,1	0,1	68,5	67,1	67,1		0,9	
05	AL05015	Peach, juice, from local producers	100	238	56	85,6	0,3	0	13,7				0,4	
06	AL06001	Almonds, kernel, natural	102	2590	626	4,4	21,9	53,2	19,9	9,8	4,35	10,1	2,97	0
06	AL06003	Pistachios, roasted and salted	101	2670	645	1,8	19,7	55,9	20,1	11,3	7,74	8,8	3,79	0
06	AL06004	Peanuts, roasted and salted	98,2	2390	576	1,5	23	43	28,4	20,1	6,3	8,3	2,33	0
07	AL07001	Chicken wurstel	101	1010	244	62,5	12,6	20,1	3,2	3,2	1	0	3,06	0
07	AL07002	Suxhuk, classic, halal		581	139		13,2	9,06	1,23	-	-			
07	AL07003	Pig meat, canned	95,4	896	216	60,9	13	18	0,5	0,50	0,5	0	2,93	0
07	AL07004	Meat, lamb, leg part, raw	100	1154	278	57,8	17,9	22,8	0,35	0			1,15	
07	AL07005	Poultry, chicken, raw	100	766	184	67,5	19,9	11,4	0,35	0			0,85	
08	AL08001	Chicken egg, raw, white	99,1	552	133	76,2	12,4	9	0,5	0,50	0	0	1,06	0
09	AL09001	Fish, raw, Koce	100	481	114	75,6	18,5	3,9	1,30		0		0,7	
09	AL09003	Fish, tuna, canned in sunflower oil	99,5	780	187	64,0	22,5	10,7	0,1	0,10	0	0	2,18	0
09	AL09004	Shellfish, shrimp, raw	100	255	60	83,6	13,2	0,7	0,25	0			2,25	
10	AL10001	Cow milk, raw	100	305	73	88,1	3,4	4,53	4,67	4,67	4,57	0		0
10	AL10002	Sheep milk, raw	102	565	136	80,1	6,5	10,5	3,9	3,9	3,9	0	0,96	0
10	AL10003	Goat milk, raw	97,8	255	61	87,0	3,06	3,62	4,07	4,07	4,07	0		0
10	AL10004	Cow milk, pasteurised	101	213	51	91,8	2,95	2,6	3,9	3,9	3,9	0		0
10	AL10005	Goat cheese, hard, mature	100	1380	331	45,5	22	25	4,54	4,54	0,12	0	2,94	0
10	AL10006	Yogurt, cow, 2,8% fat, plain	99,4	240	57	87,9	3,3	2,8	4,7	4,7	4,7	0	0,72	0
10	AL10007	Yogurt, cow, 1% fat, with forest fruit	95,4	346	82	75,3	4,2	1	14	14	14	0	0,93	0
10	AL10008	Cow milk, UHT, 3,5 % fat	99,6	265	63	88,1	3,2	3,5	4,75	4,75	4,75	0		0
10	AL10011	Cheese, cow, traditional	100	1490	359	43,7	25,4	28,5	0,20		0,1		2,2	
10	AL10012	Yogurt, cow, with fruits (laboratory made)	100	279	66	86,1	3,89	2,72	6,6		6,6		0,69	
10	AL10013	Yogurt, cow, traditional (homemade)	100	269	64	87,4	3,86	3,5	4,35		4,35		0,89	
11	AL11001	Olive oil, extra virgin	100	3700	900	0	0	100	0	0	0	0		0
11	AL11002	Margarine, 60% fat, soft	101	2230	542	38,7	0,6	60	< 0,5		< 0,5	0	1,7	0

11	AL11003	Butter, cow	102	3060	743	16,2	0,6	82	0,7	0,7	0,7	0	2,11	0
11	AL11004	Sunflower oil	100	3700	899	0,1	0	99,9	0	0	0	0	0	0
11	AL11005	Corn oil	100	3700	900	0	0	100	0	0	0	0	0	0
12	AL12001	Red wine	100	66	16	86,5	0,07	0	3,81	3,81	0,13	0	0,28	9,35
12	AL12002	White wine	100	48	11	86,9	0,07	0	2,75	2,75	0,15	0	0,17	10,2
12	AL12004	Beer, Pilsner	100	71	17	92,0	0,46	0	3,71	3,71	0	0	0,16	3,71
12	AL12006	Coca cola, original taste	99,4	170	40	89,4	0	0	10	10	10	0	0	0
12	AL12007	Spring water	100	0	0	100	0	0			0	0	Tr	0
13	AL13003	Honey	100	1420	334	16,3	0,3	0	83,4	83,2	67,0	0,2	0,08	0
13	AL13004	Blueberry, syrup	100	1040	245	38,7	0	0	61,3	61,3	51,9	0	0	0
13	AL13005	Chips, potato, classic	100	2380	572	1,1	4,84	39,7	50,4	47,3	0,33	3,1	3,94	0
13	AL13006	Tomato ketchup	100	530	125	68,5	1,04	0,1	30,1	29,8	21,3	0,3	0,25	0
13	AL13007	Coffee beans, roasted		681	164	4,2	13,7	12,1	-	-	4,22		4,43	
13	AL13008	Vinegar	100	105	25	93,8	0	0	6,19	6,19	6,19	0	0	0

-Minerals

Food Group Code	Original Food Code	English Food Name, generic	CA (mg)	FE (mg)	MG (mg)	P (mg)	K (mg)	ZN (mg)	CU (mg)	NA (mg)	NACL (g)
01	AL01001	Wheat flour	15	1,17	22	108	107	0,7	0,14	2	
01	AL01002	Maize flour	5	1,74	110	263	381	2,24	0,15	5	
01	AL01003	Rye flour, wholemeal	37	4,97	160	499	717	5,04	0,56	2	
01	AL01004	Wheat bread, white	684	4,89	26	103	127	0,95	0,15	478	
01	AL01005	Maize bread	34	1,58	43	94	114	0,82	0,12	9	
01	AL01006	Rye bread	73	2,83	40	125	166	1,14	0,19	603	
01	AL01007	Wheat common	34	5,37	90	402	435	3,46	0,43	2	
01	AL01008	Bulgur, dry	35	2,46	164	300	410	1,93	0,34	17	
01	AL01009	Trabana, traditional product, wheat based	106		54		294			200	0,5
01	AL01010	Pasta, wheat, dried	21	1,3	53	189	223	1,41	0,29	6	
01	AL01013	Corn, for popcorn	7	2,71	127	210	287	2,21	0,31	35	
01	AL01014	Oats rolled	58	5,41	235	734	566	3,11	0,40	4	
01	AL01015	Rice, white, dried	9	0,8	35	108	86	1,16	0,11	1	
03	AL03001	Chick-pea, grits	45	4,86	166	318	846	2,81	0,91	64	
03	AL03003	Beans, red, canned	29	1,25	30	106	260	0,62	0,15	248	0,62
03	AL03004	Lentils, red, dried	48	7,39	59	294	668	3,6	1,30	7	

04	AL04001	Cucumbers, pickled	0	0,4	4	14	23	Tr	0,09	872	2,18
04	AL04002	Maize, canned	4	0,41	16	51	164	0,36	0,06	280	0,7
04	AL04012	Cabbage, white, pickle									1,98
04	AL04017	Tomato, concentrate, 100% (lab made)									1,5
05	AL05001	Pomegranate, raw	10	0,3	12	36	236	0,35	0,16	3	
05	AL05002	Fig, raw	35	0,37	17	14	232	0,15	0,07	1	
05	AL05003	Fig, dried	162	2,03	68	67	680	0,55	0,29	10	
05	AL05004	Juice, apple, pasteurized	4	0,45	3	24	101	0,06	0,01	4	
05	AL05008	Juice, orange, apricot, apple, pasteurized	5	0,1	5	8	80	Tr	0,03	2	
05	AL05010	Juice, orange, carrot, lemon, pasteurized	16	0,2	10	19	174	0,07	0,04	0	0
05	AL05011	Prunes, dried	43	0,93	41	69	732	0,44	0,28	2	
06	AL06001	Almonds, kernel, natural	269	3,71	270	481	733	3,12	1,03	200	0,5
06	AL06003	Pistachios, roasted and salted	107	4,03	109	469	1010	2,34	1,29	440	1,1
06	AL06004	Peanuts, roasted and salted	61	1,52	176	397	726	3,28	0,53	720	1,8
07	AL07001	Chicken wurstel	74	1,17	20	162	202	1,11	0,08	1000	2,5
07	AL07003	Pig meat, canned	8	1,37	17	243	357	2,5	0,13	760	1,9
08	AL08001	Chicken eggs, raw, white	56	1,75	12	198	138	1,29	0,07	142	
09	AL09003	Fish, tuna, canned in sunflower oil	4	0,65	34	267	333	0,47	0,13	396	
10	AL10001	Cow milk, raw	123	0	12	101	150	0,41	Tr	38	
10	AL10002	Sheep milk, raw	193	0,1	18	158	137	0,54	Tr	44	
10	AL10003	Goat milk, raw	134	Tr	14	111	204	0,3	Tr	50	
10	AL10005	Goat cheese, hard, mature	298	1,62	29	375	158	0,66	0,56	415	
10	AL10006	Yogurt, cow, 2,8% fat, plain	121	Tr	12	95	155	0,59	Tr	46	
10	AL10007	Yogurt, cow, 1% fat, with forest fruit	138	0,06	13	109	177	0,67	0,08	53	
10	AL10008	Cow milk, UHT, 3,5 % fat	123	0	12	101	150	0,41	0,00	38	
11	AL11001	Olive oil, extra virgin	1	0,56	0	0	1	0	0	2	
11	AL11002	Margarine, 60% fat, soft	21	0	2	16	30	0	0	164	0,41
11	AL11003	Butter, cow	24	Tr	2	24	24	0,09	0	40	0,1
11	AL11004	Sunflower oil	0	0	0	0	0	0	0	0	
11	AL11005	Corn oil	0	0	0	0	0	0	0	0	0
12	AL12001	Red wine	8	0,46	12	23	127	0,14	Tr	4	
12	AL12002	White wine	9	0,27	10	18	71	0,12	Tr	5	
12	AL12004	Beer, Pilsner	4	Tr	6	14	27	Tr	Tr	4	
12	AL12006	Coca cola, original taste	1	Tr	0	9	5	0,09	Tr	3	
12	AL12007	Spring water	6	0	2	0	0	0	Tr	2	
13	AL13003	Honey	6	0,42	2	4	52	0,22	Tr	4	

13	AL13005	Chips, potato, classic	21	1,28	63	153	1200	1,09	0,23	720	1,8
13	AL13006	Tomato ketchup	15	0,35	13	26	281	0,17	0,09	936	2,34
13	AL13008	Vinegar	7	0,2	5	8	73	Tr	Tr	5	

-Vitamins

Food Group Code	Original Food Code	English Food Name, generic	VITC (mg)	THIA (mg)	RIBF (mg)	NIA (mg)	VITB6 (mg)	FOL (mcg)	VITA (mcg)	RETOL (mcg)	CARTB (mcg)	VITE (mg)	VITD (mcg)
01	AL01001	Wheat flour	0	0,12	0,04	1,2	0,04	26	0	0	0	0,06	0
01	AL01002	Maize flour			0,23	2,6	0,47						
01	AL01003	Rye flour, wholemeal	0	0,32	0,25	4,3	0,44	33	1	0	7	2,7	0
01	AL01004	Wheat bread, white	0	0,51	0,25	4,4	0,08	130	0	0	2	0,38	0
01	AL01005	Maize bread		0,03	0	0,55	0,17		0		3	0,34	
01	AL01006	Rye bread	0,4	0,43	0,34	3,8	0,07	110	0	0	4	0,33	0
01	AL01007	Wheat common	0	0,41	0,11	4,8	0,38	41	0	0	5	1,0	0
01	AL01008	Bulgur, dry	0	0,23	0,12	5,1	0,34	27	0	0	5	0,06	0
01	AL01010	Pasta, wheat, dried	0	0,09	0,06	1,7	0,14	18	0	0		0,11	0
01	AL01013	Corn, for popcorn	0	0,38	0,20	3,6	0,62	19	11	0	97	0	0
01	AL01014	Oats rolled	0	1,2	0,22	0,93	0,16	52	0	0	0	1,0	0
01	AL01015	Rice, white, dried	0	0,07	0,05	1,6	0,14	9					0
03	AL03001	Chick-pea, grits	0	0,49	0,11	1,8	0,49	440	2	0	25	0,83	0
03	AL03003	Beans, red, canned	0,8	0,11	0,07	0,49	0,08	23	0	0	0	0,02	0
03	AL03004	Lentils, red, dried	1,7	0,51	0,11	1,5	0,40	200	3	0	35		0
03	AL03005	Beans, white, dried	0										
03	AL03006	Lentils, brown, dried	3										
04	AL04001	Cucumbers, pickled	1	0	0,01	0	0,01	1	10	0	81	0,09	0
04	AL04002	Maize, canned	5,5	0,03	0,06	0,94	0,04	38	0	0			0
04	AL04012	Cabbage, white, pickle	41,6										
04	AL04016	Peas, frozen	16										
05	AL05001	Pomegranate, raw	12	0,07	0,05	0,29	0,07	38	0	0	0	0,6	0
05	AL05002	Fig, raw	3	0,06	0,05	0,4	0,11	6	7	0	85	0,11	0
05	AL05003	Fig, dried	1,6	0,08	0,08	0,62	0,11	9	0	0	6	0,35	0
05	AL05004	Juice, apple, pasteurized	89,9	0,02	0,02	0,07	0,02	0	0	0	0	0,01	0
05	AL05008	Juice, orange, apricot, apple, pasteurized	20	0,02	0,01	0,2	0,04	7	9	0	79	0,11	0

05	AL05010	Juice, orange, carrot, lemon, pasteurized	16,4	0,06	0,05	0,21	0,05	39	94	289	863	1,7	0
05	AL05011	Prunes, dried	0,6	0,05	0,19	1,9	0,21	4	39	0	394	0,43	0
05	AL05012	Apple, raw	38,6										
05	AL05013	Persimmon, dried	0										
05	AL05014	Jujube, jam	2,64										
06	AL06001	Almonds, kernel, natural	0	0,21	1,1	3,6	0,14	44	0	0	1	26	0
06	AL06003	Pistachios, roasted and salted	3	0,69	0,23	1,4	1,1	51	13	0	159	2,2	0
06	AL06004	Peanuts, roasted and salted	0,8	0,08	0,09	14	0,46	120	0	0	0	0	0
07	AL07001	Chicken wurstel	0	0,06	0,26	4,7	0,32	7	0	0	0	0,22	0,5
07	AL07003	Pig meat, canned	14	0,82	0,26	5,3	0,3	5	0	0			
08	AL08001	Chicken egg, raw, white	0	0,04	0,46	0,07	0,17	47	160	160	0	1,1	2
09	AL09003	Fish, tuna, canned in sunflower oil	0	0,02	0,08	12	0,43	5	5	5	0	2,3	
10	AL10001	Cow milk, raw	0	0,06	0,14	0,11	0,06	0	32	31	7	0,05	1,1
10	AL10002	Sheep milk, raw	4,2	0,06	0,36	0,42	0,06	7	44	147			
10	AL10003	Goat milk, raw	1,3	0,05	0,14	0,28	0,05	1	57	56	7	0,07	1,3
10	AL10005	Goat cheese, hard, mature	0	0,07	0,68	1,2	0,06	2	407	401	77	0,26	0,5
10	AL10006	Yogurt, cow, 2,8% fat, plain	0,5	0,03	0,14	0,07	0,03	7	27	27	5	0,06	0,1
10	AL10007	Yogurt, cow, 1% fat, with forest fruit	0,6	0,03	0,16	0,09	0,04	9	11	11	2	0,02	0
10	AL10008	Cow milk, UHT, 3,5 % fat	0	0,06	0,14	0,11	0,06	0	32	31	7	0,05	1,1
11	AL11001	Olive oil, extra virgin	0	0	0	0	0	0	0	0	0	14	0
11	AL11002	Margarine, 60% fat, soft	0,1	0,01	0,03	0,02	0,01	1	819	800	610	9,3	7,5
11	AL11003	Butter, cow	0	0,01	0,03	0,04	0,00	3	684	671	158	2,3	0
11	AL11004	Sunflower oil	0	0	0	0	0	0	0	0	0	41	0
11	AL11005	Corn oil	0	0	0	0	0	0	0	0	0	14	0
12	AL12001	Red wine	0	0,01	0,03	0,22	0,06	1	0	0	1	0	0
12	AL12002	White wine	0	0,01	0,02	0,11	0,05	1	0	0	0	0	0
12	AL12004	Beer, Pilsner	0	0,01	0,03	0,51	0,05	6	0	0	0	0	0
12	AL12006	Coca cola, original taste	0	0	0	0	0	0	0	0	0	0	0
12	AL12007	Spring water	0	0	0	0	0	0	0	0	0	0	0
13	AL13003	Honey	0,5	0	0,04	0,12	0,02	2	0	0	0	0	0
13	AL13004	Blueberry, syrup	1,8										
13	AL13005	Chips, potato, classic	21,6	0,21	0,09	4,8	0,53	29	0	0	0	10	0
13	AL13006	Tomato ketchup	4,1	0,01	0,17	1,4	0,16	9	26	0	316	1,5	0
13	AL13008	Vinegar	0	0	0	0	0	0	0	0	0	0	0

-Fatty acids

Food Group	Original Food Code	English Food Name, generic	FAT (g)	FACID (g)	FASAT (g)	F14:0 (g)	F16:0 (g)	F18:0 (g)	F20:0 (g)	F22:0 (g)	F24:0 (g)	FAMS (g)	F16:1CN7 (g)	F17:1 (g)	F18:1CN9 (g)	F18:1 (g)	FAPU (g)	F18:2 (g)	F18:3 (g)	F20:4 (g)	FAUNSAT (g)	CHORL (mg)
01	AL01001	Wheat flour	0,8	0,53	0,12		0,11	Tr				0,08			0,08		0,33	0,31	Tr			
01	AL01002	Maize flour	3,91	2,55	0,42		0,33	0,09				1,00			1,000		1,12	1,1	Tr			
01	AL01003	Rye flour, wholemeal	1,52	1,1	0,41		0,28	Tr				0,2			0,218		0,554	0,499	Tr			0
01	AL01004	Wheat bread, white	0,26	0,174	Tr		Tr	Tr				Tr			Tr		0,087	0,083	Tr			0
01	AL01005	Maize bread	2,19	1,55	0,265		0,222	Tr				0,508			0,508		0,778	0,762	Tr			0
01	AL01006	Rye bread	0,95	0,617	0,218		0,197	Tr				0,150			0,150		0,249	0,230	Tr			0
01	AL01007	Wheat common	2,5	0,5	0,5																1,3	
01	AL01008	Bulgur, dry	1,3	0,914	0,2	Tr	0,203	Tr				0,173	Tr		0,166		0,541	0,518	Tr			0
01	AL01009	Trahana, traditional product, wheat based	3		0,5																2,5	
01	AL01013	Corn, for popcorn	4,3	4,06	0,644		0,569	0,075				1,25	Tr		1,25		2,16	2,1	0,065			0
01	AL01015	Rice, white, dried	1,7	0,6	0,6							0,656						1,528	1,45	0,082		
03	AL03001	Chick-pea, grits	3,57	2,52	0,335		0,301	Tr				0,046			0,656		0,14	0,133	Tr			
03	AL03002	Chick-pea bread	0,34	0,241	Tr		Tr	Tr				0,046			0,046		0,14	0,133	Tr			
03	AL03003	Beans, red, canned	0,5	0,446	0,125	Tr	0,082	Tr	0	0	0	0,147	Tr	0	Tr	0	0,174	0,083	Tr	0	0	0
05	AL05001	Pomegranate, raw	1,17	0,292	0,12	Tr	0,07	Tr				0,093	Tr		0,077	Tr	0,079	0,079	0	0	0	0
05	AL05003	Fig, dried	1,17	0,648	0,144	Tr	0,11	Tr				0,159	Tr		0,158	0	0,345	0,345	0	0	0	0
05	AL05004	Juice, apple, pasteurized	0,13	0,067	0,022	Tr	Tr	Tr				Tr	0		Tr	0	0,039	Tr	Tr	0	0	0
05	AL05011	Prunes, dried	1	0,1	0,1																	
06	AL06004	Peanuts, roasted and salted	43	5,2	5,2																	
07	AL07001	Chicken wurstel	20,1	6,2	6,2																	
07	AL07003	Pig meat, canned	18	7,6	7,6																	
08	AL08001	Chicken egg, raw, white	9	8,61	3,04		2,23	0,811				3,66			3,41		1,91	1,56	Tr	0,188		300
09	AL09003	Fish, tuna, canned in sunflower oil	10,7	0,9	0,9		-	-				-			-		-	-	-	-	-	-
11	AL11001	Olive oil, extra virgin	100	93,9	13,4	Tr	11	2,39	0,1	0,1	0,1	72	0,478	0,191	71,1	0,382	8,51	0,478	0,765			0
11	AL11002	Margarine, 60% fat, soft	60	59	18							29					12					
11	AL11004	Sunflower oil	99,9	95,6	10,4	0	5,9	4,5				19,5	0		19,5	0	65,7	65,7	0	0	0	0
11	AL11005	Corn oil	100	94,7	12,4	Tr	10,6	1,85				27,6	0,114		27,3	0,129	54,7	53,5	1,16	0	0	0
12	AL12006	Coca cola, original taste	0	0	0	0	0	0				0	0		0	0	0	0	0	0	0	0
13	AL13006	Tomato ketchup	0,1	0,07	Tr	0	Tr	Tr				Tr	Tr		Tr	0	Tr	Tr	Tr	0	0	0
13	AL13008	Vinegar	0	0	0	0	0	0				0	0		0	0	0	0	0	0	0	0

Annex I

Index of foods with English and Albanian names, and corresponding reference sources

Original Food Code	English Food Name, generic	Original Food Name, generic	References consist of reference code from Daris; code of borrowed food)
AL06001	Almonds, kernel, natural	Bajame, të qëruara, natyrale	AL00038; AL00071
AL05012	Apple, raw	Mollë, e papërpunuar	AL00076
AL03003	Beans, red, canned	Fasule, e kuqe, e konservuar	AL00029; AL00071
AL03005	Beans, white, dried	Fasule, e bardhë, e tharë	AL00076
AL12004	Beer, Pilsner	Birrë, Pilsner	AL00058, AL00059; AL00071
AL01016	Biscuits, with milk	Biskotë, me qumësht	AL00069
AL13004	Blueberry, syrup	Shurup, boronice	AL00064; AL00072
AL01008	Bulgur, dry	Bullgur, i tharë	AL00019, AL00071
AL11003	Butter, cow	Gjalpë, lope	AL00053; AL00071
AL04012	Cabbage, white, pickle	Lakër, e bardhë, turshi	AL00076
AL10011	Cheese, cow milk, traditional	Djathë, qumësht lope, tradicional	AL00076
AL08001	Chicken egg, raw, white	Vezë pule, e papërpunuar, e bardhë	AL00046; AL00071
AL07001	Chicken wurstel	Wurstel pule	AL00043; AL00071
AL03001	Chick-pea, grits	Qiqëra, të grira	AL00006; AL00071
AL03002	Chick-pea bread	Bukë qiqëre	AL00006
AL13005	Chips, potato, classic	Chips, patate, klasik	AL00065; AL00071
AL12006	Coca cola, original taste	Cocla cola, shije origjinale	AL00060; AL00072
AL13007	Coffee beans, roasted	Kafe kokërr, e pjekur	AL00062; AL00075
AL11005	Corn oil	Vaj misri	AL00070; AL00072
AL01011	Corn starch	Niseshte, misri	AL00023; AL00073
AL01013	Corn, for popcorn	Misër, për kokoshka	AL00026; AL00071
AL10004	Cow milk, pasteurised	Qumësht lope, i pasterizuar	AL00014, AL00015; AL00074
AL10001	Cow milk, raw	Qumësht lope, i papërpunuar	AL00003; AL00072
AL10008	Cow milk, UHT, 3.5 % fat	Qumësht, lope, UHT, 3.5% yndyrë	AL00051; AL00072
AL04001	Cucumbers, pickled	Kastravec, turshi	AL00031, AL00032; AL00071
AL05003	Fig, dried	Fik, i tharë	AL00033; AL00071
AL05002	Fig, raw	Fik, i freskët	AL00013; AL00071
AL09001	Fish, raw, Koce	Peshk, i papërpunuar, Koce	AL00076
AL09003	Fish, tuna, canned in sunflower oil	Peshk tuna, konservuar në vaj luledielli	AL00047; AL00071
AL10005	Goat cheese, hard, mature	Djathë dhie, i forte, i maturuar	AL00048; AL00071
AL10003	Goat milk, raw	Qumësht dhie, i papërpunuar	AL00003, AL00072
AL13003	Honey	Mjaltë	AL00005, AL00063; AL00071
AL05004	Juice, apple, pasteurized	Lëng molle, i pasterizuar	AL00034; AL00071
AL05008	Juice, orange, apricot, apple, pasteurized	Lëng, portokall, kajsia, mollë, i pasterizuar	AL00035; AL00071
AL05010	Juice, orange, carrot, lemon, pasteurized	Lëng portokall, karotë, limon	AL00012, AL00036; AL00071
AL05014	Jujube, jam	Hide, recel	AL00076
AL03006	Lentils, brown, dried	Thjerrëza, kafe, të thara	AL00076
AL03004	Lentils, red, dried	Thjerrëza të kuqe, të thara	AL00030; AL00071
AL01005	Maize bread	Bukë misëri	AL00006; AL00071
AL01002	Maize flour	Miell misëri	AL00024; AL00071
AL04002	Maize, canned	Misër, i konservuar	AL00025; AL00071
AL11002	Margarine, 60% fat, soft	Margarinë, 60 % yndyrë, e butë	AL00052; AL00071
AL07004	Meat, lamb, leg part, raw	Mish, qingji, pjesë këmbë, i papërpunuar	AL00076
AL01014	Oats rolled	Tërshërë, e ashpër	AL00027; AL00071
AL11001	Olive oil, extra virgin	Vaj ulliri, ekstra i virgjër	AL00002; AL00072
AL01010	Pasta, wheat, dried	Makarona, gruri, i tharë	AL00022; AL00071
AL05015	Peach, juice, from local producers	Lëng, pjeshke, nga prodhues lokalë	AL00076
AL06004	Peanuts, roasted and salted	Kikirikë të pjekur me kripë	AL00041; AL00072

AL04016	Peas, frozen	Bizele, të ngrira	AL00076
AL05013	Persimmon, dried	Hurma, e tharë	AL00076
AL07003	Pig meat, canned	Mish derri, i konservuar	AL00045; AL00071
AL06003	Pistachios, roasted and salted	Stika, të pjekura me kripë	AL00040; AL00071
AL05001	Pomegranate, raw	Shegë, e papërpunuar	AL00001; AL00071
AL07005	Poultry, chicken, raw	Shpendë, mish pule, i papërpunuar	AL00076
AL05011	Prunes, dried	Kumbull, e tharë	AL00037; AL00072
AL04003	Red beetroot, raw	Panxhar i kuq, i papërpunuar	AL00076
AL12001	Red wine	Verë e kuqe	AL00004, AL00016, AL00055; AL00071
AL01015	Rice, white, dried	Oriz, i bardhë, i tharë	AL00028; AL00071
AL01006	Rye bread	Bukë thekre	AL00006; AL00071
AL01003	Rye flour, wholemeal	Miell thekëri, i plotë	AL00006; AL00071
AL10002	Sheep milk, raw	Qumësht dele, i papërpunuar	AL00003; AL00071
AL09004	Shellfish, shrimp, raw	Produkte deti, karkalec, i papërpunuar	AL00076
AL12007	Spring water	Ujë burimi	AL00061; AL00072
AL11004	Sunflower oil	Vaj luledielli	AL00054, AL00068; AL00072
AL07002	Suxhuk, classic, halal	Suxhuk, klasik, hallall	AL00044
AL13006	Tomato ketchup	Ketchup domateje	AL00066; AL00072
AL04017	Tomato, concentrate, 100%	Koncentrat, domateje, 100%	AL00076
AL04013	Tomato, raw, fully mature	Domate, e papërpunuar, e maturuar plotësisht	AL00076
AL01009	Trahana, traditional product, wheat based	Trahana, produkt tradicional, me bazë gruri	AL00021
AL13008	Vinegar	Uthull	AL00057; AL00072
AL01004	Wheat bread, white	Bukë gruri, e bardhë	AL00006; AL00071
AL01007	Wheat common	Grurë, i zakonshëm	AL00017, AL00020; AL00071
AL01001	Wheat flour	Miell gruri	AL00018; AL00071
AL12002	White wine	Verë e bardhë	AL00056; AL00072
AL10013	Yogurt, cow, traditional (homemade)	Kos, lope, tradicional (bërë në shtëpi)	AL00076
AL10007	Yogurt, cow, 1% fat, with forest fruit	Kos, lope 1% yndyrë, me fruta pylli	AL00050; AL00071
AL10006	Yogurt, cow, 2.8% fat, plain	Kos, lope, 2.8% yndyrë, i thjeshtë	AL00049; AL00071
AL10012	Yogurt, cow, with fruits, (laboratory made)	Kos, lope, me fruta (prodhuar në laborator)	AL00076

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AL00016	Morina, A. Kongoli, R., Bozo, S.: Influence of variety and cultivation area on antioxidant properties of red wines produced by Albanian grape cultivars, ICAFE 2014
AL00017	Test report of standard wheat, MS Laboratory Xërxë, FO-5.10-1 V1.0 DAK testim 078, M&Silloi Food Industry No.12
AL00018	Test report of flour, MS Laboratory Xërxë, FO-5.10-2 V1.0 DAK test 078, M&Silloi, Food Industry No.12
AL00019	Food Label, Bullgur, of food company Teuta Durres shpk
AL00020	Food Label, Grurë për ashure, of food company Alegria shpk
AL00021	Food Label Trahana e thartë, of food company Alegria shpk
AL00022	Food label, Makarona, of food company Prima shpk
AL00023	Food label, corn starch, of food company Teuta Durres shpk
AL00024	Food label, maize flour, of food company Neranxi, N.N shpk
AL00025	Food label, sweet maize canned
AL00026	Food label, maize for popcorn, of food company Alegria shpk
AL00027	Food label, oats whole, of food company Neranxi, N.N shpk
AL00028	Food Label, rice white, dried, traditional King, of food company Ferra&CO
AL00029	Food label, red beans, canned, distributed of ERBIRON SH.P.K.
AL00030	Food label, red lentils, dried, of food company Teuta Durres shpk
AL00031	IKSHPK Center of Testing Laboratories, SK EN ISO/EC 17025, LT 040/2014/DAK, cucumber pickled
AL00032	Food label, cucumber pickled, by food company Sejega shpk
AL00033	Luziana HOXHA, Renata KONGOLI: Application of hurdle technology as a novel approach to new dietary fig-based products development in rural areas of albania, 2019. Scientific Bulletin. Series F. Biotechnologies, Vol. XXIII, pp. 102-107.
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AL00035	Food label, juice orange apricot apple, pasteurized, of brand AMITA
AL00036	Food label, juice orange, carot, lemon (Multivitamin ACE), Santal 1L
AL00037	Food label, prunes dried, of food company Alegria shpk
AL00038	Food label, almond natural, by food company Alegria shpk
AL00040	Food label, pistachios roasted and salted, by food company Alegria shpk
AL00041	Food label, peanuts roasted and salted, Extra brand by food company Elka S.A.
AL00043	Food label, chicken wurstel, Jupiter, Food Group shpk
AL00044	Food label, Suxhuk classic, product halal, by food company Kazazi meat shpk
AL00045	Food label, pig meat, canned, premium quality, by AGRICO
AL00046	Food label, chicken eggs, fresh, class A, white color, by AIBA company s.a.
AL00047	Food label, fish tuna, canned in sunflower oil, by Dardanel
AL00048	Food label, goat cheese, hard and matured, by AGS Ltd Zepa Natyral
AL00049	Food label, cow yogurt, 2.8% fat, fresh pasteurized homogenized, by Lufra shpk.
AL00050	Food label, yogurt with forest fruits, by AGS Ltd Zepa Natyral
AL00051	Food label, cow milk 3.5% fat, UHT, Lufra shpk
AL00052	Food label, margarine 60% fat, soft, Vitam
AL00053	Food label, cow butter, by Erzeni shpk
AL00054	IKSHPK Center of Testing Laboratories, DAK LT 075, LUSH 1-1741, sun flower oil
AL00055	Test report 076/2020. Vranac-2018. QK-MBPZHR/VK-MPSRR/GK-MAFRD, Departamenti për vreshtari dhe verëtari, DAK testim 070.
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AL00066	IKSHPK Center of Testing Laboratories, SK EN ISO/EC 17025, LT 040/2014/DAK, Ketchup tomato
AL00068	Food label, sunflower oil, of food company Teuta shpk
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Annex III List of organization

Full Organization Name	Postal Address	Country	Telephone	Fax	E-mail	Web
Alegria shpk	RRUGA KOMBETARE GJIROKASTER-TEPELENE	AL	+355 68 21 444 41		info@alegria.com.al	https://alegria.com.al/
Teuta Durres shpk	Lagja 15. Rruga "Aleksander Goga" KP 2001, Durrës, Shqipëri	AL	+355 52 22 3094	+355 52 22 5370	info@teutadurres.com	http://www.teutadurres.com/
M&SILLOSI Flour Factory	Address: 21060, Xërxe / Rahovec, Kosovo	XK	+383 (0) 29 633 733	+383 (0) 29 633 744	info@msillosi.com	https://www.msillosi.com/en/
Prima sh.p.k. - Bloja Co.	Rr. Kavajes, Tiranë Albania	AL	+355 4 224 846	+355 4 240 157	info@prima.al	https://www.prima.al/
Neraxi, N.N shpk	N. N sh.p.k Autostrada: Tiranë- Durrës, Km 7, Yrshëk,	AL	+355 42 406 500	+355 48 200 419	neraxi@neraxi.al	http://neraxi.al/
Ferra&CO	Lagja 14, Rruga Tirana, Shkozëz, Durrës	AL	+355 4 454 0440		info@ferra.al	https://www.ferra.al/
ERBIRON SH.P.K.	18 KOMUNA KASHAR, KATUNDI I RI, RRUGA MONUN, 1000, TIRANE	AL	+355-42406555			
IKSHPK (Instituti Kombëtar i Shëndetësisë Publike të Kosovës)	IKSHPK Rr. Nëna Tereze p.n., Rrethi i Spitalit 10.000, Prishtinë, Republika e Kosovës	XK	+383 38 551 431		ikshpk@rks-gov.net	http://niph-rks.org/
Sejega shpk	Damjan-Fortuz factory buildings, Vaqarr, Tirana, Albania	AL	+355 4 2270 990	+355 4 2250 933	info@sejega.com	http://www.sejega.com/
Amita, Partner Baalkanik SH.P.K	Libohovë, Gjirokastrë, 6003	AL	+355-8426-8724	+355-8426-8723		https://www.partner- ballkanik.com/en/producer- of-amita-juice
FRIGO FOOD SH.P.K.	Rruga 3 Deshmorët, Yzberisht, Tirana	AL	+355 4 2229 008	+355 4 2255 036		
Elkos Group	Zona Industriale, PN, 10 000, Prishtinë	XK	+381 038 601 040	+381 038 601 041		https://www.elkosgroup.com/ rrethkompanis.php
ELKA S.A.	Vrisera, Gjirokastrë	AL	+355 8426 7301	+355 8849 0099	info@elka-sa.com	https://www.elka- sa.com/
Palma sh.p.k.	Adresa: Rr."Hamdi Peço", Tiranë	AL	+355692030889		info@palma.com.al	https://www.palma.com.a l/
Kazazi meat shpk	Kanaparaz Kavajë	AL	+355 69 80 10 111		info@kazazi.al	http://kazazi.al/
AGS Ltd. Zepa Natyral	Sukth Durrës	AL	+355 69 7070 123		info@zepanatyral.al	https://zepanatyral.al/
Alba Company sh. a	Rruga Sali Nivica Lagja 14 Shkozëz , Durrës	AL			office@alba.al	https://alba.al/index.php? lang=en
QK-MBPZHR/VK- MPSRR/GK-MAFRD, Departamenti për vreshtari dhe verëtarë	Rr. Ulqshin Hoti - Kompleksi 'Ramiz Sadiku' 10000 Prishtinë	XK	038 211 821			https://www.mbpzhr- ks.net/sq/departamenti- per-vreshtari-dhe-veretari
Birra Peja sh.a.	Str. Nexhdet Basha Nr.1,60 30000 Pejë, Kosovë	XK			info@birrapeja.com	https://www.birrapeja.co m/
Coca-Cola Bottling Albania L.t.d (CCBS)	Rruga Kombëtare Tiranë-Durrës, km 5, Kashar, Tirana.	AL	+35545606060		info@cocacola.al	https://www.coca- cola.al/al/home/
MBPZHR, Instituti Bujqësor i Kosovës	Rr. Adem Jashari, Nr.244, 30000 Pejë	XK	039423747		instituti.bujqesor@rks-gov.net	
Global logjistik shpk	Tirana	AL				
EUROGRAMA shpk Fabrika e Biskotave	Qerete, Fushe-Kruje	AL	00355692024454		eurograma@hotmail.com	

Annex IV

Traditional dishes prepared in the Agricultural University of Tirana

I. Traditional dish “Dolma” (also known locally as japrake, sarma)

Preparation

Green grape leaves are boiled in taped water and left to drain. In the meantime, the cleaned rice is fried with olive oil, and various spices are added such as parsley, fennel, mint, black pepper, oregano, tomato, and salt. Then the grape leaves are filled with rice and carefully wrapped so they don't open when boiled. Leaves are boiled in low heat until the rice boils and they are served on plates.

Ingredients	Weight of ingredients in g (only edible part of foods)
green grape leaves, raw	102
rice, white, dried	200
black pepper, dried, milled	0.5
oregano, dried leaves	0.51
salt	7
olive oil, extra virgin	50
parsley, fresh	13
fennel, fresh	15
mint, dried leaves	0.5
tomato, raw	186
water	781
Total raw weight of ingredients in g	1355.51
Total cooked weight in g	1001

Yield factor (YF) = Total cooked weight (g) / Total weight of raw ingredients (g) = 0.74
 Serve 6-7 dolmas/person, 200 g per person.

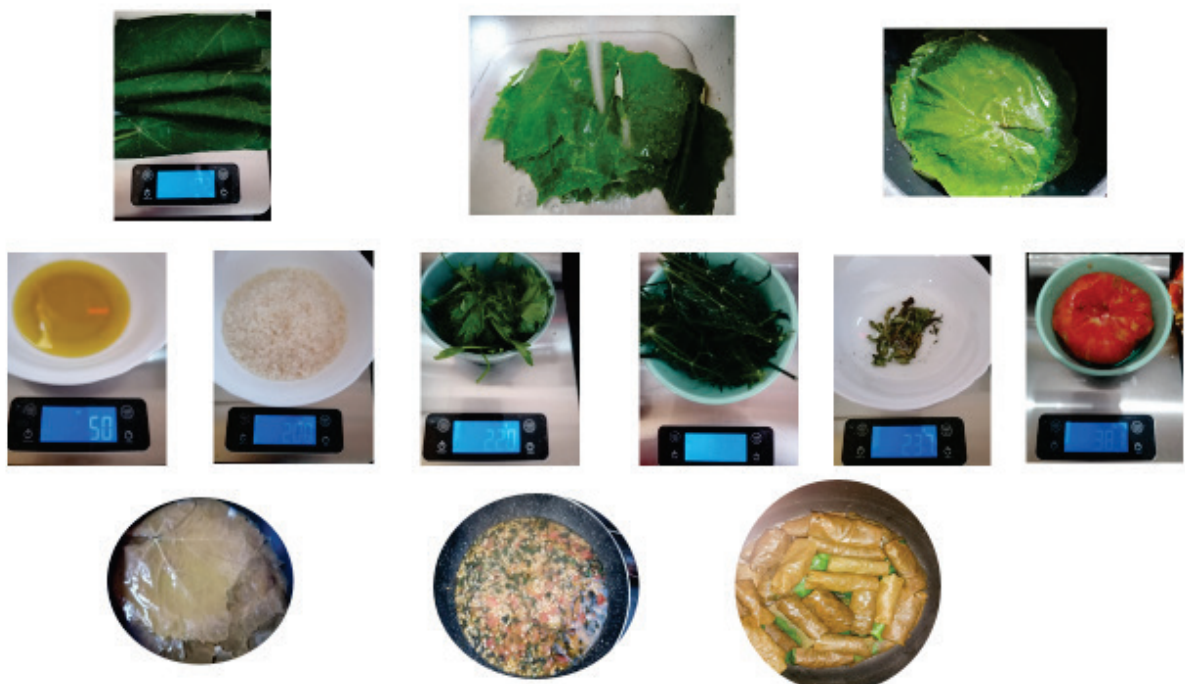


Figure 5: Ingredient and steps for dolma preparation

II. Traditional dish of lima beans (local name: “tavë me fasule pllaqi”)

Preparation

For the preparation are taken 500 g of lima beans, 2 minced onions, 2 carrots minced in graters, 2 crushed cloves of garlic, oregano, black pepper, 2 leaves of laurel, 100 ml of oil, tomato, water, and salt. The lima beans are placed to boil after the boiled beans are drained and placed in a baking pan. In the meantime, onions are fried in a frying pan. Carrots are added and 1 tablespoon of tomato (blended) and mix them. Next add salt to the beans and the crushed garlic, oregano, black pepper, and laurel leaves. The fried mixture is then poured on top of the beans and a half glass of water. The baking pan is placed in the oven at a heat of 200°C for 30 min until the juice is accumulated in the beans. This dish is served cold.

Ingredients	Weight of ingredients in g (only edible part of foods)
lima beans (large white), dried	500
olive oil, extra vergine	100
onion, red, raw	309
carrots, raw	66
garlic, fresh	9
oregano, dried leaves	0,5
black pepper, dried, milled	0,5
laurel, dried leaves	0,5
salt	7
tomato, raw	189
water	242
Total raw weight of ingredients in g	1423,5
Total cooked weight in g	1408

Yield factor (YF) = Total cooked weight (g) / Total weight of raw ingredients (g) 0,99
 Provides 6 servings, 235 g per portion



Figure 6: Ingredients and steps for lima beans dish

III. Traditional dish of “jufka dibre”

Preparation

Farm chicken is boiled with water and salt. In a pan is melted the butter and add the finely chopped onions, fry them for 3-4 min, checking that the onion is caramelized, add pepper, lisen, and salt to the pan and mix them, taking care not to stick to each other. Take the hot pan out of the oven, add the chicken and its broth, and place the pan in the oven at 200-220°C for about 15-20 min, till the surface gets a little brown color or the broth is adsorbed by jufka.

Ingredients	Weight of ingredients in g
chicken, whole, with bones, raw	1200
jufka (traditional pasta), dried	481
butter, cow	100
onion, red, raw	82
salt	1,5
black pepper, dried, milled	0,5
lisen (wild oregano), dried	0,5
broth of chicken (from the same boiled chicken here)	807,5
Total raw weight of ingredients in g	2673
Total cooked weight in g	2535

Yield factor (YF) = Total cooked weight (g) / Total weight of raw ingredients (g) 0,95
Provides 6 servings, 422 g per portion



Figure 7: Ingredients and steps for "jufka dibre" dish preparation

IV. Traditional dish of lacteous (local name: qumështor)

Preparation

For the preparation are taken 1 kg milk, 10 tablespoons flour, 10 eggs, 50 gr butter, 10 tablespoons sugar. First whisked eggs, then milk flour and melted butter are mixed. The baking pan is sprayed with oil and then the moisture prepared previously is poured into it. The mass is baked in the oven at 220°C for 15 min, then 150

degrees for 15 min other. When it is ready, is removed from the oven and left to cool down. Then the product is cut and served cold.

Ingredients	Weight of ingredients in g
cow milk, whole fat	1000
egg, whole	514
butter, cow	50
sugar, white	144
wheat flour	110
Total raw weight of ingredients in g	1818
Total cooked weight in g	1743

Yield factor (YF) = Total cooked weight (g) / Total weight of raw ingredients (g) 0,96
Provides 9 servings, 194 g per portion



Figure 8: Ingredients and steps for lactous dish preparation

V. Traditional dish of pekmez (of white mulberry)

Preparation

Mulberry white fruits must be fully ripe and removed from those with defects, is washed and drained the mulberries. Sugar is added and let to rest overnight (most of the juice is extracted). Then the mulberries are put to boil on low heat for 60 minutes, with continuous stirring. Heating is removed and is let to cool for 15 min, then all the mass is put in cheesecloth and through a sieve to obtain only the juice. The juice of mulberry obtained, then is boiled in low heat until it becomes viscose. After removing from the heat, it is thrown hot into sterilized jars, and hermetically sealed. Vases should be stored in dark places and whith no humidity. It is consumed like honey, or as syrup in ice cream, yogurt, etc.

Ingredients	Weight of ingredients in g
mulberry, white, raw	1275
sugar, brown	148
Total raw weight of ingredients in g	1423
Total cooked weight in g	385

Yield factor (YF) = Total cooked weight (g) / Total weight of raw ingredients (g) 0,27
(measured density as mass/volume is ~1,3 g/ml)



Figure 9: Ingredient and steps for pekmez preparation

Annex V

Food composition data of traditional dishes calculated by using nutritional software Alimenta 4.3e

Parameters per 100 g edible portion

-Nutrients

Traditional dish name	Sum of proximates										
	ENERC (kJ)	ENERC (kcal)	WATER (g)	PROT (g)	FAT (g)	CHOT (g)	SUGAR (g)	FIBT (g)	ASH (g)		
Japrakë	102	551	71,3	2,37	5,51	19,1	1,23	1,94	1,21		
Jufka Dibre	96	667	63,7	10,2	6,97	14,5	0,16	0,51	0,50		
Pekmez, mani i bardhë	102	1150	21,8	4,53	1,30	68,0	63,5	4,5	2,14		
Qumështor	99	656	69,6	6,01	7,70	16,0	11,0	0,15	0,72		
Tavë me fasule pllaqi	105	755	56,1	8,00	7,40	24,5	4,65	7,72	1,94		

-Minerals

Traditional dish name	CA (mg)	FE (mg)	MG (mg)	P (mg)	K (mg)	ZN (mg)	CU (mg)	NA (mg)	MN (mg)	NACL (g)
Japrakë	51	0,88	20	38	101	1,82	0,1	272	0,59	0,68
Jufka Dibre	16	1,07	16	65	68	0,85	0,08	37	0,27	0,06
Pekmez, mani i bardhë	194	8,28	59	101	508	0,40	0,20	41		
Qumështor	85	0,78	15	120	132	1,22	0,11	67	0,04	
Tavë me fasule pllaqi	39		75	137	545	1,54	0,04	229	0,72	0,48

-Vitamins

Traditional dish name	VITC (mg)	THIA (mg)	RIBF (mg)	NIA (mg)	VITB6 (mg)	FOL (mcg)	VITA (mcg)	RETOL (mcg)	CARTB (mcg)	VITE (mg)	VITD (mcg)
Japrakë	5,6	0,04	0,02	0,61	0,08	31	68		1486	0,79	
Jufka Dibre	1,2	0,03	0,09	1,78	0,11	4	31	24	30	0,61	Tr
Pekmez, mani i bardhë	48,2	0,06	0,28	1,64	0,12		0		22		
Qumështor	0,7	0,04	0,23	0,19	0,07	12	109	86		0,72	1,2
Tavë me fasule pllaqi	4,2	0,13	0,07	0,53	0,17	6	122			1,19	

-Fatty acids

Traditional dish name	FAT (g)	FACID (g)	FASAT (g)	F12:0 (g)	F14:0 (g)	F15:0 (g)	F16:0 (g)	F17:0 (g)	F18:0 (g)	F20:0 (g)	F22:0 (g)	F24:0 (g)	FAMS (g)	F14:1CN5 (g)	F16:1CN7 (g)	F18:1CN9 (g)	F18:1 (g)	F19:1 (g)	F20:1 (g)	FAPU (g)	F18:2 (g)	F18:3 (g)	F18:3N3 (g)	F20:4 (g)	CHORL (mg)
Japarakë	5,51	5,23	0,81	Tr	0,01	Tr	0,62	0,01	0,13	0,02	Tr	0,02	3,82	Tr	0,06	3,74		0,01	0,02	0,60	0,44	0,13	0,05	0,03	
Jufka Dibre	6,97	6,96	3,27	0,10	0,36		1,86		0,62	0,02			2,23		0,13	1,98	0,10			0,57	0,51	0,06	0,02	Tr	40
Pekmez, mani i bardhë	1,29	0,91	0,09				0,02		0,07				0,14			0,14				0,69	0,68	Tr			
Qumështor	7,67	6,89	3,56	0,13	0,45	Tr	1,83	Tr	0,72	0,02	Tr		2,6	Tr	0,24	2,26	0,07		0,01	0,72	0,60	0,07	0,02		140
Tavë me fasule pllaqi	7,40	7,10	1,14	Tr	0,02		0,86	0,01	0,19	0,03		0,03	5,21		0,08	5,10		0,01	0,02	0,76	0,61	0,10	0,07	0,04	

Annex VI

Tests report on nutritional profile of selected Albanian food

Prepared in accordance with agreement no. 911, date 05.04.2022 AUT-NPPC, for analysed products: Beans, white, dried; Lentils, brown, dried; Red beetroot, raw; Cabbage, white, pickle; Peas, frozen; Tomato, concentrate, 100%; Apple, raw; Persimmon, dried; Jujube, jam; Peach, juice, from local producers; Meat, lamb, leg part, raw; Poultry, chicken, raw; Fish, raw, Koce; Shellfish, shrimp, raw; Cheese, cow, traditional; Yogurt, cow, with fruits; Yogurt, cow, traditional (homemade).

The information registered in Daris, related to used analytical methods for each analysed parameter is described below:

Energy (kJ)

The metabolizable energy values of all foods are given in kilojoules (kJ). The energy values have been calculated based on protein, fat, and available carbohydrates, by applying the energy conversion factors shown in Table 1.

Table 1: Metabolizable energy conversion factors¹

	kJ/g
Protein	17
Fat	37
Available carbohydrate	17

Water (g)

Water content is calculated gravimetrically derived from drying methods (AOAC, 2000²). The moisture content, W, as percentage by mass of the sample (grams per 100 grams), is equal to:

$$W = \frac{M_1 - M_0}{M_1 - M_2} \times 100$$

where

M_0 is the mass, in grams, of the dish and lid.

M_1 is the mass, in grams, of the dish and lid, and the test portion before drying

M_2 is the mass, in grams, of the dish and lid, and the test portion after drying.

¹ FAO. 2004. Energy in human nutrition. Report of a Joint FAO/WHO/UNU Expert Consultation. FAO Food and Nutrition Paper No. 78. Rome.

² AOAC. 2000. Official Methods of Analysis. 17th ed. Gaithersburg, Maryland, USA, AOAC International.

Protein, total (g)

The protein content was determined by Kjeldahl method as total N, (AOAC, 2000)

$$\%N = (T-B) * N * 14,007 * 100 / \text{weight of sample (g)}$$

T: sample titration

B: blank titration

N: normality of titrant

Calculated by multiplying the nitrogen values with the nitrogen conversion factors of Jones, we have assumed that general nitrogen conversion factor was 6,25 applied based on Regulation (EU) No. 1169/2011 of the European Parliament and the Council on the provision of food information to consumers.

$$\% \text{protein} = N * F$$



Figure 10: Total protein determined by Kjeldahl method

Fat, total (g)

The fat value (which includes triglycerides, phospholipids, sterols, and related compounds) for the foods was derived by the continuous extraction Soxhlet methods for crude fat (AOAC, 2000).

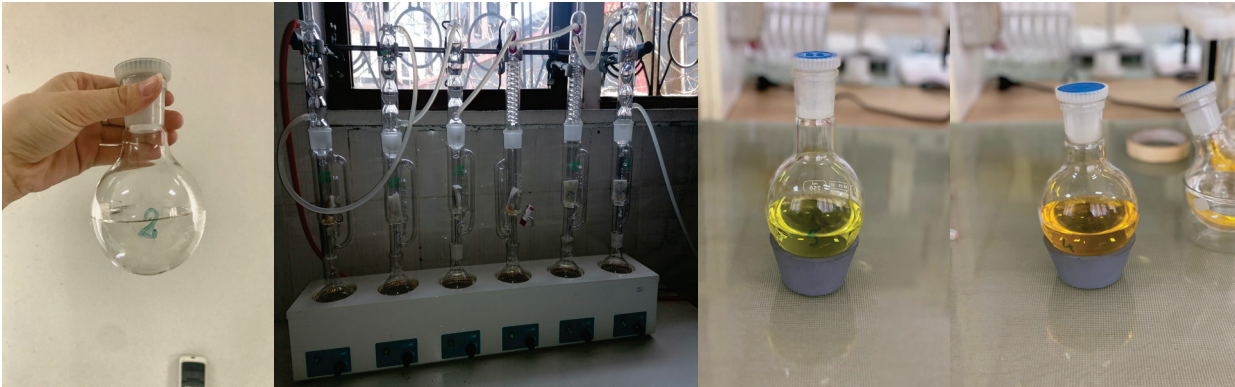


Figure 11: Total fat determined with continuous extraction Soxhlet methods

Carbohydrates, total (g)

Carbohydrates are expressed as 'carbohydrates total by difference' $CHOT = 100 - (\text{Water} + \text{Protein} + \text{Fat} + \text{Alcohol} + \text{Ash})$.

Carbohydrates available in a few cases were documented method type as LZ - logical zero, and method type U - estimated according to logical deduction. Sugars and lactose were determined analytically with the Lane & Eynon volumetric method and in milk and their products were assumed $SUGAR = CHO = CHOT$.



Figure 12: Sugars determined with the Lane & Eynon volumetric method

Ash, total (g)

Total ash is determined according to AOAC (2000) with a muffle furnace to the incineration temperature, and calculated with formula:

$$= \frac{m_2 - m_1}{m_0 - m_1} \times 100$$

Where m_0 = mass in gram of dish and test portion m_1 = mass in gram of empty dish m_2 = mass in gram of dish and acid insoluble ash



Figure 13: Total ash is determined with a muffle furnace

Total acidity (g)

Total acidity is determined with the potentiometric method (AOAC, 2000), titrating with 0,1 N NaOH till its pH raises to 8,1 and calculated acidity as the predominant acid present in the sample, where 1 mL of 0,1 N NaOH equals

Malic acid – 0,0067 g; *Citric acid monohydrate* – 0,0070 g; *Citric acid anhydrous* – 0,0064 g; *Lactic acid* – 0,0090 g; *Acetic acid* – 0,0060 g; *etc.*) by the formula:

$$\text{Acidity} = \frac{\text{Eq.wt. of acid} \times N \text{ NaOH} \times 100}{\text{Sample weight/vol. of alcohol} \times 1000}$$



Figure 14: Total acidity determined with potentiometric method

Vitamine C (mg)

Vitamine C (ascorbic acid) is determined with the titrimetric determination of ascorbic acid with 2,6-dichlorophenol indophenol (AOAC, 2016³).

³ AOAC International (2016) Official methods of analysis, 20th edn. (On-line). AOAC International, Rockville, MD



Figure 15: 2,6-dichlorophenol indophenol solution

Sodium Chloride (g)

Determination of Sodium Chloride (salt content) is made according to Mohr's method⁴, with direct titration of sodium chloride with standard silver nitrate solution 0,1N till the red-brown endpoint, result calculated by the formula:

$$\text{NaCl \%} = \frac{\text{Titre value} \times \text{Normality of AgNO}_3 \times 58.45 \times 100}{\text{Weight of the sample} \times 1000}$$



Figure 16: Samples titrated with standard silver nitrate solution 0,1N till red-brown endpoint

Analysed products: Beans, white, dried; Lentils, brown, dried; Red beetroot, raw; Cabbage, white, pickle; Peas, frozen; Tomato, concentrate, 100%; Apple, raw; Persimmon, dried; Jujube, jam; Peach, juice, from local producers; Meat, lamb, leg part, raw; Poultry, chicken, raw; Fish, raw, Koce; Shellfish, shrimp, raw; Cheese, cow, traditional; Yogurt, cow, with fruits; Yogurt, cow, traditional (homemade), illustrated as following:



Figure 17: Beans, white, dried

⁴ ISI Handbook of Food Analysis (Part VIII) – 1984 page 5



Figure 19: Lentils, brown, dried

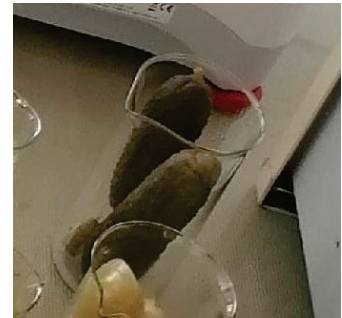


Figure 18: Cucumber, pickled



Figure 20: Red beetroot, raw

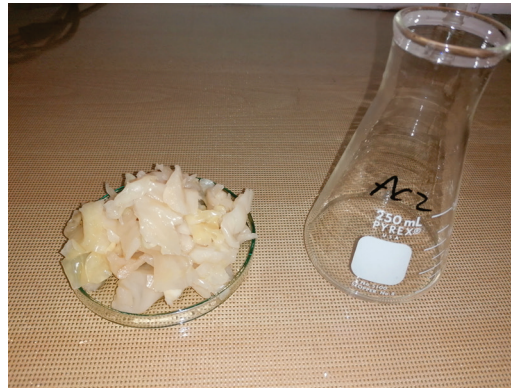


Figure 22: Cabbage, white, pickle



Figure 21: Tomato, raw, fully mature



Figure 24: Peas, frozen

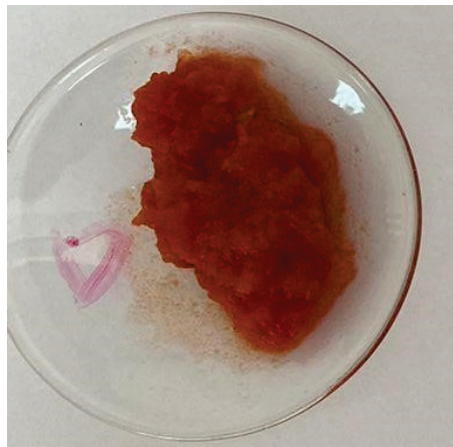


Figure 23: Tomato, concentrate, 100% (lab made)



Figure 26: Apple, raw



Figure 25: Persimmon, dried



Figure 28: Jujube, jam, dried

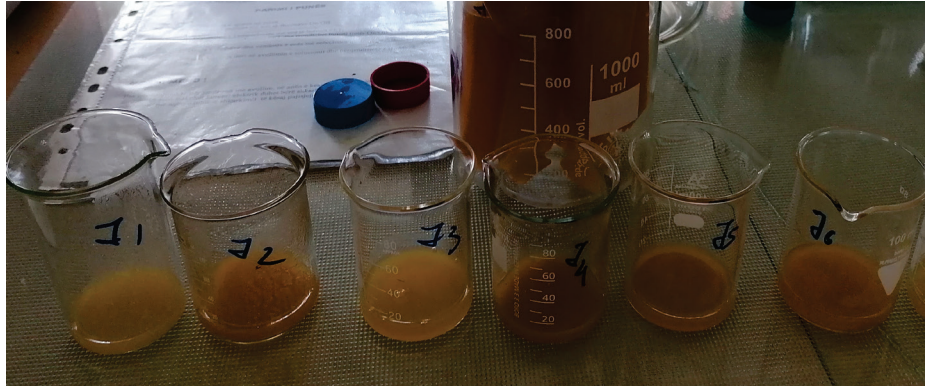


Figure 27: Peach, juice, from local producers

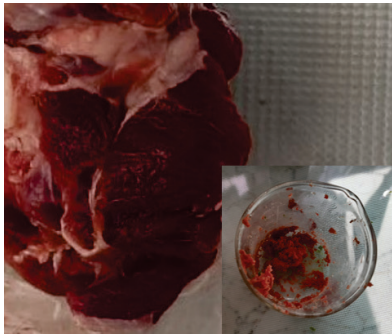


Figure 31: Meat, lamb, leg part, raw



Figure 30: Poultry, chicken, raw



Figure 29: Fish, raw, Koçe



Figure 33: Shellfish, shrimps, raw



Figure 34: Cheese, cow, traditional



Figure 32: Yogurt, cow, traditional (homemade)

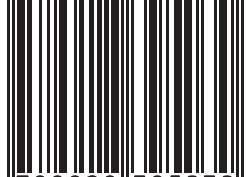
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