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FRESH AND PROCESSED EXOTIC PRODUCTS TRADED IN THE CITY OF IAŞI

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ABSTRACT *- The offer of fresh fruits and vegetables (in less number) and processed under different forms (stews, juices, nectars, concentrates, sterilized in water or pickle) has become more attractive, since 2005, in the important supermarkets from the Iasi City. After the adhesion to the European Union, these products became more accessible and diverse as assortment.*

Key Words: exotic fruits, nutritive value, trade offer in Iaşi City

REZUMAT - Produse horticole exotice proaspete şi prelucrate, comercializate în municipiul Iaşi. *Oferta de fructe şi, în număr mai mic, de legume exotice proaspete şi procesate sub diferite forme (compoturi, sucuri, nectaruri, concentrate, sterilizate în apă sau saramură, deshidratate etc), a devenit tot mai atrăgătoare, încă din anul 2005, în supermarketurile mai importante din raza municipiului Iaşi. După aderarea la UE, aceste produse au devenit mai accesibile şi mai diverse ca sortiment.*

Cuvinte cheie: fructe exotice, valoare nutritivă, oferta de produse din Iaşi

The presence of the tropical fruits, mentioned from old times, in the Balkan area and in Romania, was attested by old documents. This presence may be understood as a connection between our country and Southern and Eastern countries that were close to us by origin, common customs, numerous intermediary commercial ways, by the integrating economic and political sphere, which was Roman, then Byzantine and, finally, Ottoman and Phanariot (Kogălniceanu and Negruzzi, 1841). Armenian and Greek tradesmen, Walachian caravan men, all conditions and origin townsmen, boyars, great tradesmen or high clergy were the keepers of a common civilization, with unifying features between

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Orient and Occident, which had a mutual daily existence not only in culture, music and clothes, but also in thinking and food habits (Beceanu,1997).

Since the 13th century, the dry fruits called "poame*"* (from the imported term "*bacalii*", traded by *bakkâlii* from Orient and Balkans; from the Arabian word *baqqal*, comes *bakkâl* in Turkish), were sold to be consumed during the fast periods. **Figs, dates, apricots, raisins,** but also plums, pears or other dry fruits were in demand for export. The Romanian word "băcănie" (store of foodstuffs) has its origin in this term. The "Băcani" toponym was attested in Wallachia since 1493, and the "Băcanul" onomastic name, since 1583. They mention about "Prăvălii de băcănie" in a document from the archives of the Sf. Apostoli Monastery (Wallachia, 1614) (Beceanu, 1997).

A proof of the flourishing trade, deployed from East to West, was also represented by the assortment of imported fruits, sold in the markets of Cluj, during the 16th -17th centuries. The municipality of Cluj had registered, for almost six decades (1578-1637), the variety, frequency and price of fruits and vegetables consumed by the foreign guests. By frequency of registration, they mentioned the following products: 16 types of vegetables (onion, radish, parsley, cabbage, garlic, pea, horseradish, lettuce, red onion, beet, tarragon, melon, water melons, common sage, green garlic and dill), 16 types of fruits (apples, pears, plums, gooseberries, black currants, **almonds**, peanuts, cherries, grapes, peaches, nuts, walnuts, sour cherries, crab apples and wild strawberries), two species of imported fruits **(lemons and oranges),** as well as 11 types of processed products (brine cabbage, vinegar, dry plums, ***raisins***, brandy, pickles, must of grapes, plum wine, aqua vitae and dry pears).

In the 17th century, the traveller **Paul of Alep** (1653) wrote in his notes: "Here is the list of gifts given to the Voivode (Vasile Lupu from Moldavia): two jars of jam, a box of candied fruits, almonds, raisins, dates, apricots, salted and unsalted pistachio." (Beceanu, 1997).

In the 19th century, olives had, in the Iasi market, a three times higher price than quinces, and the price of a lemon was as much as three quarters of a kilo of pears.

The exotic horticultural products fall into three large groups, according to their geographic origin: horticultural products from the temperate zone (known), subtropical and tropical. We mention that the majority of the subtropical and tropical products from importation are fruits, the sweet potatoes being the only vegetables (tropical) from this assortment. The subtropical and tropical vegetables are less known. This is due to the fact that they have a more reduced commercial interest and are perishable.

Among the subtropical fruits, the citric fruits are the most known ones. Their nutritional and dietary importance is remarkable.

Table 1

Official price of some horticultural products in the markets of Iaşi, in October 1832 (Beceanu, 1997**)**

Product	UM	LV(lei- old currency)	F(farthings)
Cabbage	a hundred	4	-
Nuts	a thousand	2	-
Dry onion	¾ kg	-	16
Beans	¾ kg	-	14
Carrots	¾ kg	-	10
Quinces	¾ kg	1	20
Grapes (fruit)	¾ kg	-	32
Pears	¾ kg	-	24
Apples	¾ kg	-	20
Dry plums	¾ kg	-	16
Plum brandy	10 l	36	-
Marc brandy	10 l	40	-
Fruit brandy	10 l	44	-
Lemons	pc	-	12
Lemon juice	¾ kg	2	20
Olives	¾ kg	3	-
Saffron (ounce)	ounce	2	20

Lemons (*Citrus limon, C.limonia*) contain 87% water and their juice contains 17-27% sugars, citric acidity 0.75-1.2 g%, vitamin C 30-50 mg % (Alexan and Bojor, 1983; Messegue, 1998; Mihăescu, 1994).

Oranges (*C. sinensis*) have a juice with 12% sugars at most, citric acidity 1.3- 1.5%, vitamin C 50 mg%; the skin has 0.6-1% volatile oil, the albedo (white and thin mesocarp) has 2% proteins, 6% cellulose, 7% reducing sugars and 2% non-reducing ones, 1.3% pectin, 1.2% ash, 0.35% citric acid, 0.15% hesperidins and 0.3% hydro-soluble flavones (Alexan and Bojor, 1983; Messegue, 1998; Mihăescu, 1994). They are the raw material for juices, concentrates, crystallized fruits, marmalades (bitter oranges), jams, essences, etc.

Grapefruit (*C. paradisi*) has 90% water, 6% sugars, 1.3% fibres, about 40 mg% vitamin C, 0.2% minerals (potassium and calcium) (Alexan and Bojor, 1983; Messegue, 1998; Mihăescu, 1994).

Tangerines (*C. reticulata*) are of two types (mandarins and tangerines), besides **C. unshiu** (clementine and satsuma). They are the raw material for juices, volatile oils, syrup, etc. (Espinard, 2002).

The less consumed citric fruits are **pomelos** (*C. grandis*) considered to be a kind of grapefruit, from which they make juice, concentrates, essences, etc. **Limes (***C. aurantifolia*) or green lemons (sour lime) have a juice containing 10-15% sugars and 1-1.5% citric acidity, being processed like oranges, but much more difficultly (Messegue, 1998).

Olives (*Olea europaea* subspecies *sativa***)** have their fruit of 2.2-3.7-7.6 g and the stone of 0.5-1.2 g. The small ones contain 33% oil and the medium-big ones contain 30-28% oil. There are table olives that are pickled green or ripe and olives for oil extraction. The virgin oil is extracted by cold compressing or by heating and the sansa oil is extracted from the remains of the press.

Fresh **figs (***Ficus carica***)** have about 13.5% sugars, acidity 0.4%, protides about 2%, cellulose almost 3%, and minerals 0.8%; they are industrialized in syrup, they are crystallized, turned into jams and dehydrated.

Kiwi (*Actinidia sinensis***),** originating from China, has 75-83% pulp, 10-15% skin and 7-10% seeds – the juice contains 81-87% water, 9-14% reducing sugars and 11-17% total ones, 1,4-2% acidity, 0.5% pectins, 0.4/ fibres and 0.6% minerals. In New Zeeland, they produce syrups, frozen pulp and purée, and the so-called kiwi wine with 8.5% vol. alcohol.

Pistachio (*Pistacia vera***).** Its fruit is a drupe with skin and core. The core has two flashy greenish perfumed cotyledons with 40-45% starch and 30-35% oil, very sensitive to oxidation. It is dehydrated, salted and fried after decortication.

Fizalis (*Physalis peruviana*) is a fruit related to tomatoes, rich in vitamin C and carotene.

Carobs (*Ceratonia siliqua***)** from the *Fabacee* family (legumes) have a pod 10-20 cm long and 2 cm wide, with 5-10 seeds,(the pod pulp is very sweet), and the seeds contain a jelly. From carobs they make cacao substitutes (Karub, Karob) and alcoholic macerates for the preparation of bonificators in the recipes of fine distilled drinks (Alexan and Bojor, 1983).

Pomegranates (*Punica granatum***), fizalis (***Physalis peruviana***)**, **kumquats** (*Fortunella*- ovoid citric fruits) and **limequats** (hybrids *Citrus* × *Fortunella*) were also present in the market from Iaşi.

Tropical fruits

Bananas (*Musa sapientum***)**. The fruits are very sweet and have 22-25 % glucides, 1-1.8% protides, 0.7- 1.5 % minerals, and fibres 5.2%. The *plantains* (cooking bananas) are used as vegetables in their originating countries (Espinard, 2002; Tomas-Barberan and Robins, 1997; Watson, 2001).

Avocado (*Perseea gratisima)* has about 1400 kcal/kg, being more caloric than potato. It has 76% water, about 2% protides, below 1% sugars, over 14% lipids, of which 9% monounsaturated and 2% polyunsaturated, minerals over 0.5% (potassium, phosphor, magnesium, calcium, iron), beta carotene 0.2 mg%, vitamin C 11 mg%, other vitamins E 2 mg%, PP has 2 mg%, group B in a higher proportion than other products (Espinard, 2002; Tomas-Barberan and Robins, 1997; Watson, 2001).

Pineapple (*Ananas comosus***),** originating from Paraguay, spread in the entire Latin America since the 15th century, and subsequently in all the tropical countries with a humid climate. The spherical long fruit may reach 3-4 kg (the

common fruit has 1.5-2 kg) and is consumed in fresh or processed state (pieces in syrup, juice, concentrated juice). The natural juice has between 13 and 17 ^{0}Bx, 115-155 g sugar/ litre and 1.0-1.3 g% citric acidity (Espinard, 2002; Tomas-Barberan and Robins, 1997; Watson, 2001).

Coconuts (*Cocos nucifera***)** have a coconut milk containing 95% water, 0.7% protides, 4% sugars and 0.4% minerals. The fresh core has 46-50% water, 36-39% lipids, 3-4% protides, 3-5% glucides, 2-4% fibres, 4.3% minerals. From the oily core they extract the copra oil. The coconut milk may be preserved differently, but it is less required (Espinard, 2002; Tomas-Barberan and Robins, 1997; Watson, 2001).

Dates (*Phoenix dactylifera***)** are non-homogenous in contents, according to their origin (Sifri - Saudi variety is the sweetest, followed by the Tunisian one, Deglet-Nour, and the least sweet varieties are Miskani, Saudi and Rhars – Tunisian ones). They have a humidity of 11-55%, sugars between 42-82%, acidity 0.3-1% and fibres 15-17% (there are dates with only 5% fibres, such as Deglet Nour variety in Tunisia), protides 1.5-2% and minerals 1.2-2% (Espinard, 2002).

Mango (*Mangifera indica***)** has 80% water, 13-17% reducing sugars and 18-19% total sugars, 0.5-0.8% acidity, fibres 1-5% and minerals 0.5%. The fresh fruit has 78% pulp and contains ascorbic acid 40-50 mg% and carotene over 3 mg%. It is processed as stew, crystallized fruits, dehydrated fruits, jams, syrup, and preserved pulps (Espinard, 2002; Tomas-Barberan and Robins, 1997; Watson, 2001).

Papaya (*Carica papaya***).** The fruit has 70-75% pulp, 15% skin and seeds, a humidity of 86-89%, 7-10% sugars, 2% fibres, 0.6% acidity, 0.6% proteins, and 0.6% minerals. From papaya they make purées and pulps, and from the latex of the fruits, vegetable pepsin is extracted, which is a natural holoproteidical and protheolitical enzyme (Espinard, 2002).

Maracuja (*Passiflora edulis***)** (the name results from the flower shape of the passion fruit, in the religious meaning) has a humidity of 81%, sugars 10%, starch 1%, acidity 3-4%, and minerals 0.5%. They make juices and concentrates from fruits.

Opuntia (*Opuntia ficus indica***)** is also named Barbarian figs (in France) or Nopal (in Mexico). The pulp contains 83% humidity, 13% sugars, 2% pectins, 0.5% acidity, and 1.2% protides. It is a raw material for marmalades (Espinard, 2002).

Litchi (*Litchi sinensis***)** has 81-87% humidity, 9-14% reducing sugars and 11-17% total ones, 1.4-2% acidity, 0.5% pectins, 0.4% fibres, 1% protides, 0.6% minerals and vitamin C, only 4 mg%. It is a raw material for stews and juices (Espinard, 2002; Watson, 2001).

Carambola (*Averrhoa carambola***),** called the star fruit, is succulent, sweet –acid, and is consumed especially in fresh state (unpreserved).

Kiwano (*Cucumis metuliferus*), **rambutans (***Nephelium lappaceum***)** and **mangosteens (***Garcinia mangostana***)** were present in the commercial offer of certain supermarkets from Iaşi, only for testing the customers' interest.

The sweet potato (*Ipomaea batatas)* has 72% humidity, 1.2% proteins, 25% glucides, of which 12% starch and 11% soluble glucides, 3% fibres, 0.4% minerals (potassium, calcium, phosphor, and magnesium), 25 mg% vitamin C and 4 mg% beta-carotene.

Table 2

Offer of subtropical and tropical fruits[1] from the supermarkets of Iaşi
(July 10, 2006**)**

	Product	Assortment	Type	UM	Quantity	Price	Origin
1	Lemons	subtropical	fresh	Kg	1	2.99	Turkey
2	Oranges	subtropical	fresh	Kg	1	5.49	Greece
3	Oranges	subtropical	fresh	Kg	1	5.99	South African Republic
4	Tangerines	subtropical	fresh	Kg	1	4.99	Turkey
5	Lime	subtropical	fresh	pc	1	1.79	South Africa
6	Kiwi	subtropical	fresh	Kg	1	11.99	Chile
7	Bananas	tropical	fresh	Kg	1	2.99	Ecuador
8	Coconuts	tropical	fresh	pc	1	2.49	Ivory Coast
9	Pineapple	tropical	fresh	pc	1	8.99	Costa Rica
10	Mango	tropical	fresh	pc	1	6.90	Brazil
11	Avocado	tropical	fresh	pc	1	5.99	Israel
12	Figs	subtropical	dry	g	250	4.99	Turkey
13	Dates	subtropical	dry	g	200	2.59	Iran
14	Dates	subtropical	dry	g	220	1.99	Iran (IRI)
15	Pineapple stew	tropical	processed	g	565	1.59	Thailand
16	Pineapple stew	tropical	processed	g	565	2.39	Thailand
17	Pineapple stew	tropical	processed	g	565	2.45	Indonesia
18	Pineapple stew	tropical	processed	g	500	2.49	Thailand
19	Pineapple stew	tropical	processed	g	565	2.69	Thailand
20	Pineapple stew	tropical	processed	g	565	2.79	Thailand
21	Tangerine stew	subtropical	processed	g	314	1.99	Thailand
22	*Jonathan apples	temperate climate	fresh	Kg	1	1.69	Romania
23	*Cucumbers	temperate climate	fresh	Kg	1	1.99	Romania
24	*Green peppers	temperate climate	fresh	Kg	1	2.59	Romania
25	*Potatoes	temperate climate	fresh	Kg	1	1.09	Romania

[1]We did not include olives or juices-nectars from tropical-subtropical fruits
*The Romanian products were shown here only for comparison.

Table 3

Cash & carry offer of subtropical and tropical fruits in Iaşi (April 11. 2007)

Product	Assortment	Packing	Quantity	Price RON	Origin country
Stew					
Lyches	tropical	Box	580 g	5.30	Germany
Pineapple pieces	tropical	Box	420-640 g	1.6-6.4	Thailand, Germany, England, Slovenia, Czech Republic
Papaya	tropical	Box	440-580 g	2.2-5.8	Germany
Kiwi	subtropical	Box			Germany
Tangerines	subtropical	Box			Germany
Dehydrated					
Figs	subtropical	bags	200-400 g	2.2-7.2	Turkey
Dates	tropical	bags			
Pineapple discs	tropical	casserole	500 g		
Fresh fruits					
Coconut	tropical	wholesale		16.5	South Africa
Bananas	tropical	wholesale		4.15	
Papaya	tropical	case	5 kg		Brazil
Cactus fruits	tropical	case	5 kg		South Africa
Hysalis		casserole	200 g	5.34	Columbia
Limaequats	tropical	casserole	150-200 g		Israel/Peru
Kumquats	tropical	casserole	150-200 g		Israel
Passion fruit	tropical	casserole	150-200 g		Columbia, Zimbabwe, South Africa
Pineapple	tropical	Bags with one fruit	about 800 g	5.43	Costa Rica
Avocado	tropical	Casserole with 4 fruits	About 250 g	2.61	Israel
Lemons	subtropical	case	1 kg	2.2	Turkey
Oranges	subtropical	Case, plastic bags	10 kg, 3kg	2.96	Greece
Pomelo	subtropical	Bags with one fruit	1 pc	9.5	Israel, China
Grapefruit	subtropical	case	kg	3.2	Turkey
Clementine	subtropical	case	10 kg		Spain, Italy
Kiwi	subtropical	case	1 kg	4.75	Italy
Temperate fruits					
Strawberry stew	temperate	Box	400	58	Germany
Dehydrated apricots		Bags, casseroles	200-400 g	30-70	Romania
Dehydrated plums					

Table 4

World production of fruits - the 25 most important species (FAO data, 2005)

Total Fruits	Temperate Zone	Mil. tons	Place	Sub tropical	Mil tons	Place	Tropical	Mil. tons	Place
Place 1-4 257,2 (51%)	Grapes	65.6	2	Oranges	59.7	3	Bananas		1
	Apples	59.4	4						
		125.0	24.8%		59.7	11.8%		72.5	14.4%
	Pears	19.5	6	Olives	14.4	9	Mango	28.2	5
	Peaches	15.8	8	Lemons	12.7	10	Pineapple	16.8	7
	Plums	9.5	11	Dates	6.9	12	Papaya	6.8	13
	Strawberries	3.6	15	Grape fruit	3.7	14	Avocado	3.2	16
	Apricots	2.8	17	Kiwi	1.1	24	Persimmon	2.6	18
	Cherries	1.8	19	Figs	1.1	25	Anacardium	1.7	20
	Almonds	1.6	21						
	Nuts	1.5	22						
	Sour cherries	1.2	23						
Place 5-25 156,5 (31%)		57.3	11.3%		39.9	7.9%		59.3	11.7%
Place 1-25 413,7 (82%)		182.3	36.1%		99.6	19.7%		131.8	26.1%
Unimporant fruits 91,3 (18%) 505,0 (100%)	Raspberries, quinces, black currants etc. Temperate fruits unspecified (minor)			Pistachio, subtropical fruits unspecified (minor)			Tropical fruits unspecified (minor)		

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