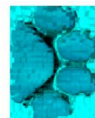




FCUB ERA



2nd FCUB ERA Workshop

Food Chemistry and Biotechnology

Belgrade, 18th and 19th October 2011.



2nd FCUB ERA Workshop

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P 30. Nutritive and biological values of some *Pyrus* varieties growing in Serbia

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Different *Pyrus* varieties grown in the territory of Serbia are collected and examined from the standpoint of their nutritive and biological values. Great diversity in their morphological properties is well studied and exposed in the Collection of fruit (582.634.1) funded in the Natural History Museum in Belgrade, where the Project “Collection of fruit – autochthonous and cultivated fruit of Rudnik – Takovo region” has been realizing since 2005. However, detailed content of some common parameters is not completely known.

The aim of this study was to characterize twelve different allochthonous varieties of *Pyrus* species grown on the territory of Serbia. These are: Beurre Clairgeau, Abbate Fetel, General Leclerc, Beurre Bosc, Conference, Beurre d` Hardepont, Williams Christbirne Bartlett, Doyenne du Comice, Kifer, Packham’s Triumph, Curé, Passe Crassane. These varieties are commercial, and have the same origin (*Pyrus communis L.*). Most of them grows in Serbia since 18th or 19th century, but some of them are new (e.g. Packham's Triumph). Morphological and organoleptic properties, as well as basic chemical composition and energetic values, indicated significant difference between species. This is very important for their potential use in food industry, such as production of juices, sweets, jams, alcoholic beverages, etc.

In order to characterize these pear varieties in more detail, the content of organic acids, proteins, carbohydrates (total sugar content, glucose, fructose, pectin, insoluble dietary fibers), lipids, minerals and vitamin C was determined by standard methods.

Although the differences in the chemical composition of samples were found, the obtained results indicate that all of *Pyrus* varieties are suitable for potential industrial processing - high content of carbohydrates (55 – 71 g / 100 g dry matter basis) makes them usable for preparing different fruit products, as well as fermentation beverages. Pectin (0.3 – 6.3 g / 100 g) and fiber content (1.6 – 6.3 g / 100 g), which differs among varieties, is very important for gelling, thickening and stabilizing of pear products, as well as for functionality of these fruits.



Nutritive and biological values of some *Pyrus* varieties growing in Serbia

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These varieties are:

Beurre Clairgeau (I), Abbate Fetel (II), General Leclerc (III), Beurre Bosc (IV), Conference (V), Beurre d` Hardepoint (VI), Williams Christbirne Bartlett (VII), Doyenne du Comice (VIII), Kifer (IX), Packham's Triumph (X), Curé (XI), Passe Crassane (XII).

They are commercial, and have the same origin (*Pyrus communis* L.). Most of them grows in Serbia since 18th or 19th century, but some of them are new (e.g. Packham's Triumph). Examples of some *Pyrus* varieties are shown in Figure 1.

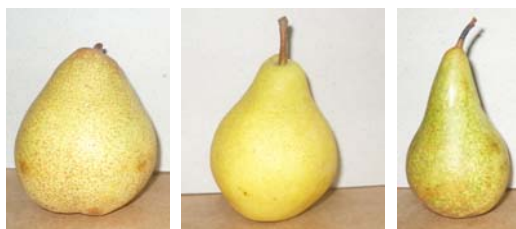


Figure 1: Some examples of *Pyrus* varieties growing in Serbia

Morphological and organoleptic properties, as well as basic chemical composition and energetic values, indicated significant difference between species. This is very important for their potential use in food industry, such as production of juices, sweets, jams, alcoholic beverages, etc.

In order to characterize these pear varieties in more detail, the content of organic acids, proteins, carbohydrates (total sugar content, glucose, fructose, pectin, insoluble dietary fibers), lipids, minerals and vitamin C was determined by standard methods.

Obtained results are given in Table 1.

Table 1: Chemical composition and energetic values of some *Pyrus* varieties growing in Serbia

		COMPONENTS (DRY MATTER BASIS)											
		VARIETIES											
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Carbohydrate compounds	Citric acid (mg/g)	10	20	20	10	0	10	0	10	30	20	30	10
	Proteins (mg/g)	110	70	120	80	100	110	0	150	110	120	70	100
	Carbohydrates (mg/g)	580	550	710	690	630	660	690	710	630	610	660	590
	Lipids (mg/g)	6.61	5.20	6.31	7.27	5.94	6.08	15.50	7.14	6.17	8.99	4.91	7.22
	D-Glucose (mg/g)	170	160	210	180	170	170	190	200	160	170	180	160
Carbohydrate compounds	D-Fructose (mg/g)	390	370	460	420	390	400	430	440	380	390	410	360
	Dietary fibers (mg/g)	18.00	19.95	16.10	41.46	63.12	27.56	62.02	36.29	62.95	23.86	59.79	52.08
	Pectin (mg/g)	6.14	4.54	15.03	50.13	2.90	63.05	15.11	38.63	20.80	16.93	12.72	22.45
	Ca	0.11	0.16	0.28	0.17	0.24	0.21	0.27	0.34	0.40	0.36	0.19	0.22
Macro and microelements, mg/100g	P	1.29	0.44	0.33	0.69	1.50	0.47	0.25	1.22	1.02	2.93	0.54	0.45
	K	8.78	8.96	8.73	8.09	8.96	8.33	6.29	9.26	15.29	9.34	9.19	8.11
	Na	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.01	0.51
	Mg	0.41	0.38	0.56	0.42	0.44	0.51	0.44	0.37	0.32	0.58	0.55	0.38
	Fe	0.003	0.004	0.005	0.005	0.005	0.005	0.004	0.003	0.002	0.006	0.004	0.007
	Zn	0.006	0.006	0.003	0.008	0.006	0.007	0.006	0.004	0.004	0.006	0.008	0.005
	Cu	0.004	0.002	0.002	0.007	0.004	0.005	0.003	0.003	0.004	0.005	0.009	0.002
	Mn	0.002	0.001	0.003	0.001	0.002	0.004	0.002	0.001	0.001	0.002	0.001	0.002
Vitamin C (mg/g)	0.17	0.30	0.07	0.18	0.09	0.06	0.08	0.06	0.12	0.20	0.07	0.07	
Energetic value (kcal/100g mesocarp)	44.79	42.74	43.93	45.44	44.76	47.43	39.72	46.65	48.07	44.60	44.96	47.05	

Although the differences in the chemical composition of samples were found, the obtained results indicate that all of *Pyrus* varieties are suitable for potential industrial processing - high content of carbohydrates (55 – 71 g / 100 g dry matter basis) makes them usable for preparing different fruit products, as well as fermentation beverages. Pectin (0.3 – 6.3 g / 100 g) and fiber content (1.6 – 6.3 g / 100 g), which differs among varieties, is very important for gelling, thickening and stabilizing of pear products, as well as for functionality of these fruits.

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