Table 1
Experimental results on the yield and physicochemical properties of pectin from oranges and lemons

Sample	Treatment	Pectin yield %	Purity %	DE %	$[\eta]$ dlg^{-}	M_{η}	GS_{0} TB
Thin-skinned lemons	Control Laser ablated	8,9 10,8	86,2 90,1	61,4 59,2	2.62 2.62	93 000 93 000	240 255
Thick-skinned lemons	Control Laser ablated	13,0 16,2	88,8 91,2	64,7 61,2	3.32 2.31	133000 78 000	270 280
Oranges 1	Control Laser ablated	9,0 12,0	77,4 80,1	58,4 56,2	1.16 1.39	31 000 39 000	225 230
Oranges 2	Control Laser ablated	9,1 11,6	78,4 81,3	59,0 56,8	1.17 2.32	32 000 79 000	240 250
Oranges 3	Control Laser ablated	13,1 16,5	77,9 80,2	65,2 65,0	4.33 4.52	186000 197000	270 285

COMPARISON OF THE ANTIOXIDANT ACTIVITY IN BERRIES AND FRUIT PRODUCTS MADE FROM BERRIES

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ABSTRACT

Berries (raspberry, blueberry, blackberry, black and red currant, gooseberry, etc.) are one of the popular group of fruits. They contain pigments in a big

quantity. These pigments belong to the group of the anthocyanidins and are mostly flavonoids. These compounds are very important in the healthy nutrition. Our aim was to examine the berry species known on Hungary and the prepared foods from them. We wished to collect data with the examinations the fruit's antioxidant characteristics, and to find contexts concerned with the measured antocianidin pigment content with C-vitamin content.

Table 1
Analytical results: vitamin C, anthocyanidin and antioxidant activity in raw fruits

BERRY (Latin name)	**Variety**	**Harvest time**	**C vitamin mg/100g**	**Antho-cyanidin mg/g**	**Anti-oxidant activity I50, mg**
Elder (Sambucus nigra)	Haschberg	Aug 30	240,0	53,85	0,165
Black currant (Ribes niger)	Titania	July 05	238,2	21,10	0,119
Blueberry (Vaccinium myrtillis)	Heidii	July 05	213,8	12,18	0,423
Blackberry (Rubus fruticosus)	Loch Ness	July 05	203,4	46,80	0,090
Red currant (Ribes rubrum)	Jonkeer v Tets	July 05	114,1	7,50	0,552
Josta (Ribes uva-crispa x Ribes nigra)		July 05	110,4	11,85	0,428
Gooseberry red (Ribes uva-crispa)	Rokula	July 05	79,0	8,36	0,484
Raspberry (Rubus idaeus)	Rumilova	July 05	45,4	5,40	0,457
Grape red (Vitis vinifera)	Hamburgi muskotály	Sept 24	45,1	7,49	0,312
Raspberry yellow (Rubus idaeus)	Golden Bliss	July 05	33,6	0,37	0,336
Cranberry (Vaccinium macrocorpon)	Koralle, Pilgrim	Sept 11	28,1	3,49	0,724
White currant (Ribes rubrum)	Blanka	July 05	24,4	2,43	0,522
Rose hip (Rosa canina)		Sept 30	127,2	1,615	0,011

Highest (more than 200 mg/100 g) C-vitamin content was measured in the elder, black currant, blueberry and in the blackberry. Very high (50 mg/100g) anthocyanidin quantity was measured in the elder and the blackberry. High pigment content (10-20 mg/g) was in the black currant, blueberry and in the

josta. Anthocyanidins and C-vitamin are responsible for the antioxidant activity together.
The quantity of antioxidant activity in fruit-foods differ from that of the fresh fruits with an order in generally. We found very big differences in measured nutritional value because of different quality of jams and frozen fruits.

Table 2
Analytical results: vitamin C, anthocyanidin and antioxidant activity in fruit-foods

BERRY Food type	**C-vitamin mg/100g**	**Antho-cyanidin mg/g**	**Anti-oxidant activity I50, mg**	**BERRY Food type**	**C-vitamin mg/100g**	**Antho-cyanidin mg/g**	**Anti-oxidant activity I50, mg**
ELDER				RASPBERRY			
fresh	240	53,8	0,165	fresh	45,4	5,40	0,457
Sokoró jam	22,0	19,2	0,875	frozen	48,4	4,61	0,821
Botész jam	55,5	23,9	0,198	Pacific jam	17,2	0,10	1,265
Botész pulp	69,1	53,3	0,108				
BLACKBERRY				RED CURRANT			
fresh	203	46,8	0,09	fresh	114	7,50	0,552
frozen	39,3	12,1	0,861	frozen	48,6	5,62	0,777
canned	37,2	7,70	0,984				
BLACKCURRANT				STRAWBERRY			
fresh	238	21,1	0,119	canned	15,8	1,69	1,036
Pacific jam	16,9	0,55	1,350	Pacific jam	15,8	0,00	2,086
Pacific mini jam	20,7	0,10	1,048	frozen	24,4	7,08	0,908
Blueberry				rose hip			
fresh	214	12,2	0,423	fresh	127	1,61	0,011
Herbária jan	17,7	2,24	0,508	Botész jam	69,1	1,86	0,376
St Dolfour jam	18,8	3,49	0,996	Vácrátót jam	34,6	1,06	0,809
Pacific jam	16,1	0,10	1,330	Herbária jam	18,5	1,43	1,296
				Pacific jam	17,4	0,54	0,953

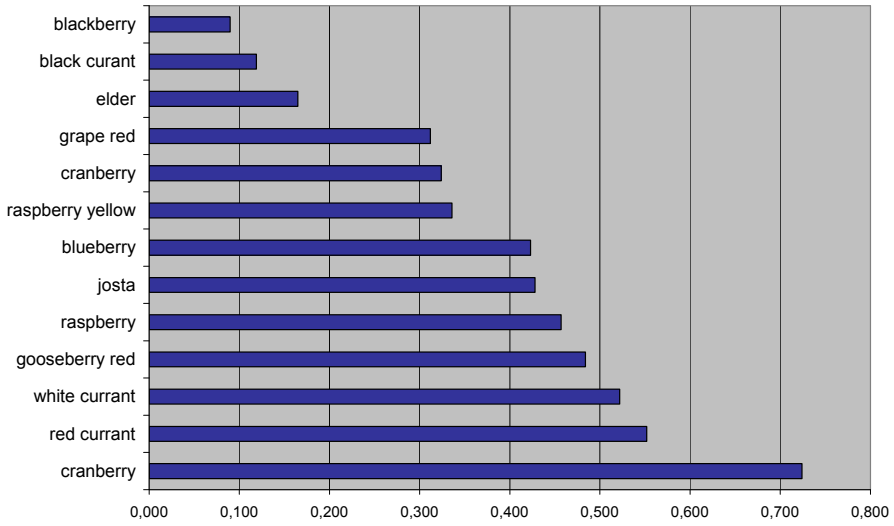

Figure 1.
Antioxidant activity of fresh fruits (I_{50} mg)
mg sample necessary to 50% inhibition in colour of DPPH reagent

EFFECTS OF SOME EXTRUSION PARAMETERS ON THE HARDNESS OF EXTRUDED LENTILS

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The objective of this research was to study the effects of moisture content (18, 20, and 22%), and screw speed (100, 150, and 200 rpm) on the hardness of extruded lentils. The lentil semolina was extruded with a single screw extruder (Brabender 20 DN) at constant barrel temperature (160ºC), screw compression ratio (2:1), and die diameter 4 mm. The hardness of the extrudates was measured with a TA.XT Plus Texture Analyser, Stable Micro Systems. The textural profiles of the extrudates showed that feed moisture had the highest effect on the hardness.