

## USE PHYSICAL AND CHEMICAL PARAMETERS FOR THE CHARACTERISTIC OF HONEY QUALITY

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### ABSTRACT

For the characteristic of honey quality it is possible to use different physical and chemical parameters. For example, activity of enzymes, the content of sugars, etc. The content of carbohydrates in honey is very diverse. It depends on kinds of honey and many other things factors. The content of sugars in honey allows define quality of honey and also characterizes specific properties of honey. Activity of enzyme invertase also as activity of enzyme amylases depends from heating and storage of honey. Therefore invertase can serve as a parameter of quality of honey. Amino acid proline is one of the main amino acids of honey. Natural honey should contain this acid. Therefore definition the content of proline in honey can serve as a parameter of quality of honey. Each carbohydrate has a specific angle of rotation of polarized light (specific rotation). It depends on relations and content of carbohydrates in honey.

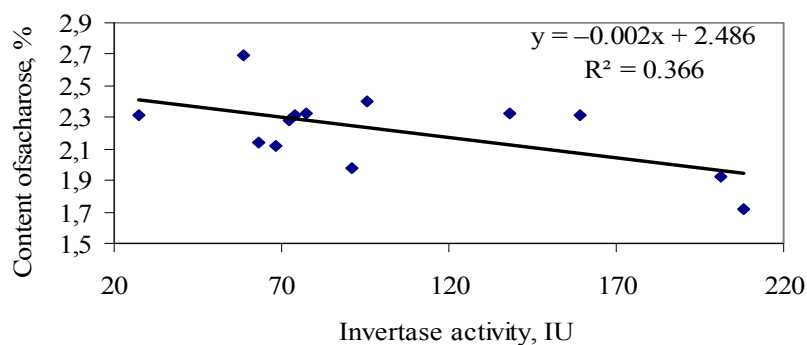


Figure 1  
Influence of invertase activity in honey on the content of saccharose.

The aim of the present research was to establish the relationship between honey sorts and content of carbohydrates as well as specific rotation and possibilities of using these criteria (content of carbohydrates, specific rotation, and activity of invertase) for characterization of honey quality. Following parameters were determined with different physical – chemical methods: specific rotation – by method of polarimetry, content of sugars with high pressure liquid chromatography, activity of invertase and content of proline – spectrophotometrically. The obtained results indicated that content of carbohydrates partially dependent on honey sorts. Content of sacharose depends from invertase activity in honey. Invertase is good parameter for honey characterization. Specific angle of rotation of polarized light is not available for identification of honey sorts.

Table 1  
Content of carbohydrates in honey, %

Kinds of honey	Place of gathering	Content of carboxydrates, %			
		Sach.	Gluc.	Fruc.	Malt.
Various flowers	Ludza	2.32	33.13	38.64	2.08
Various flowers	Jekabpils	1.92	35.23	37.10	3.92
Various flowers	Cesis	2.28	36.13	36.17	3.02
Wild flowers	Cesis	2.12	33.09	41.74	2.73
Wild flowers	Madona	2.31	33.93	35.32	4.95
Lime blossom	Riga	1.98	35.21	37.72	1.95
Lime blossom	Talsi	2.17	36.31	38.04	2.11
Dropwort flow.	Valka	2.14	33.17	40.50	3.81
Heather flowers	Limbazi	2.40	30.20	37.97	2.24
Meadow flowers	Riga	2.32	44.58	36.94	1.21
Buckwheat flow.	Saldus	1.72	33.53	38.69	2.62
Phacelia flowers	Jelgava	2.31	35.25	40.52	1.03
Sweet flowers	Riga	2.69	35.86	37.30	4.99

Kinds of honey	Place of gathering	Content of carboxydrates, %		
		Turan.	Maltr.	Meliz.
Various flowers	Ludza	2.14	0.09	0.96
Various flowers	Jekabpils	2.18	0.62	0.56
Various flowers	Cesis	1.83	0.12	0.10
Wild flowers	Cesis	1.17	0.65	0.67
Wild flowers	Madona	2.26	2.22	0.02
Lime blossom	Riga	2.12	0.82	0.35
Lime blossom	Talsi	1.83	0.72	0.56
Dropwort flow.	Valka	1.38	-	0.61
Heather flowers	Limbazi	3.78	1.46	0.82
Meadow flowers	Riga	0.97	0.44	-
Buckwheat flow.	Saldus	0.92	0.09	
Phacelia flowers	Jelgava	5.01	1.09	0.97
Sweet flowers	Riga	1.80	0.21	0.11

\* Sach. – sacharose; Gluc. – glucose; Fruc. – fructose; Malt. – maltose; Turan. – turanose; Maltr. – maltotriose; Meliz. – melizitose.

## RESPONSE SURFACE METHODOLOGY IN RHEOLOGICAL CHARACTERIZATION OF QUINCE PUREE

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Table 1  
Independent variables and their coded and actual values used in the experiments

Independent variable	Units	Symbol	Coded levels		
			-1	0	+1
<b>Temperature</b>	°C	X <sub>1</sub>	25	50	75
<b>pH</b>		X <sub>2</sub>	3.0	3.5	4.0
<b>Total solids</b>	% (w/w)	X <sub>3</sub>	10	14	18

Rheological properties of quince puree were investigated with respect to processing conditions by using response surface methodology. Effects of total solids content (10-18%), pH (3-4) and temperature (25-75°C) that could be encountered during processing on rheological properties of quince puree were determined in a central composite design. Flow behavior of quince puree was