

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY PRAGUE
Faculty of Food and Biochemical Technology
Department of Food Preservation

Final Report of Product Quality Comparison in the CR and FRG

Supervisor: University of Chemistry and Technology Prague

Project partners: MEP Olga Sehnalová and Ahold Czech Republic, a.s. (Ahold grocery chain operator)

Assignment:

This paper aimed to compare the qualitative attributes of presented products originating from the CR and FRG in order to evaluate whether they are same or different. This comparison used primarily the physical and chemical testing and sensory evaluation methods. The presented samples were together with the outputs of the tests submitted to the evaluation commission for final evaluation of differences between the products, or to articulate a hypothesis specifying the reasons of differences between the evaluated products.

Summary:

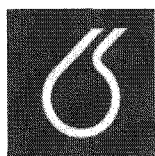
A total of 24 pairs of products bought in the CR and FRG market were proposed for evaluation. The samples were purchased by an independent commission. The samples were analysed in the accredited laboratories of the University of Chemistry and Technology Prague (VŠCHT) and EUROFINS. Moreover, sensory evaluation by a triangle test was carried out, followed by a preference test where differences had been identified. The results together with the products were submitted to the evaluation commission that issued the conclusion of evaluation as to whether or not the products are the same. Of 24 pairs of presented products, one was excluded from the evaluation since there was a reasonable doubt whether the product brand was the same. Of the remaining 23 samples, eight samples were evaluated as different. The others were evaluated as the same.

Note:

The final opinions elaborated by the evaluation commission express the opinion of the commission's members. The evaluation conducted by the commission is not based on any scientific or standardised procedures. The members of the commission, however, declare that they have not been influenced in any way whatsoever or are in no way linked to the producers of the evaluated products.

In Prague on 24 April 2015

Approved by: _____



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Selection of samples:

The aim was to select samples that would appropriately represent the market environment in the CR and FRG. The selection of samples was carried out in cooperation with VŠCHT Prague, Ahold Czech Republic, a.s., and subsequently it was approved by Olga Sehnalová, a MEP. The pairs of samples were always chosen in such a way the consumer could rightfully believe that the products are the same, i.e. especially regarding the design of packaging, the trademark and the use of other marketing texts.

Purchase and storage of samples:

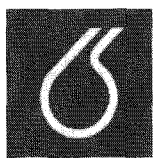
In Germany, the purchase took place in Kaufland, EDEKA and REWE stores in Dresden on 25 February. The purchase in the CR took place in TESCO, Kaufland and Albert stores in Prague on 27 February 2015. The purchase was done by the sampling commission composed of: [REDACTED] (a representative of VŠCHT Prague), [REDACTED] (representatives of Ahold Czech Republic, a.s.). During the purchasing of samples, compliance with storage conditions was checked and prices of individual products were recorded. The protocols on purchase of samples are a component part of this report. The storage conditions prescribed by the producer were observed throughout the transportation in order to avoid any negative impact on product quality. The samples were transported to storage facilities of Ahold company in Nové Butovice, from where, during the following days, they were transported to VŠCHT Prague, where they were stored until their dispatch to laboratories and the conduct of sensory evaluation. Simultaneously, photos of samples were taken that are available for inspection at the authors of the paper.

Physical and chemical testing:

The parameters for physical and chemical testing were proposed by VŠCHT Prague and reviewed by the partners. The selection of parameters aimed to choose such indicators that would best express the differences in qualitative attributes of products which can be influenced by the producer through food formulation or applied food processing technology. The testing did not aim to assess the microbiological safety of products, the levels of contaminants or other indicators that do not always demonstrate the intention of the producer.

For testing such tests were chosen which can be conducted in an accredited way in laboratories accredited under ISO 17025. Where the tests could not be carried out in an accredited way in laboratories of VŠCHT Prague, the alternative EUROFINS laboratory was opted for.

The protocols of physical and chemical testing are annexed to this report.



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Sensory evaluation:

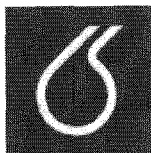
The sensory evaluation of samples was conducted in the sensory laboratory of VŠCHT Prague. The testing consisted in a triangle test, the aim of which was to assess whether the samples are the same or not in terms of sensory attributes. For evaluation the level of significance $\alpha = 0.05$ was chosen. Where a difference was identified, the evaluators applied the paired-comparison test so as to specify which sample is given preference to. These two tests were followed by a possibility to express the main differences between the tested samples through a description. Used as evaluators were the employees and students of VŠCHT Prague. The number of evaluators taking part in individual evaluations was 30. The share of men and women in individual panels ranged from 40 to 60 %. Also the share of employees and students of VŠCHT Prague in individual panels ranged from 40 to 60 %. All the members of the panel were trained in the rules of sensory evaluation, their senses were tested and they participate in similar panels on a regular basis. In terms of preference evaluation, it shall be highlighted, however, that preferences can differ in dependence on the socio-economic situation, geographical location, and also previous experience and habits of evaluators. Hence, it could also happen that a commission composed of different members would give different preferences. The protocols of sensory evaluation are annexed to this report.

Evaluation commission

The results of sensory evaluation and also the protocols of physical and chemical testing were together with the tested products submitted to the evaluation commission in order for them to issue the conclusion of evaluation. The commission aimed to assess whether or not the qualitative attributes of the identified samples are the same, or to articulate a hypothesis of causes behind the differences. The evaluation did not focus on assessing the conformity with the applicable EU legislation and the applicable legislation of countries where the products were purchased, or the conformity of results of analytical testing with the information declared on the label. The comparison of samples was performed by the commission composed of the VŠCHT Prague employees. The commission was composed of the following evaluators:

.. The commission's members in their evaluation did not have to follow any laws or standards and in a joint discussion expressed their opinion on the evaluated products. The conclusions worded in the protocols express the consensus of the commission's members. The protocols are annexed to this report.

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Results

The table below comprises a summary of all the results of individual tests (S - same; N - different). The results show that in some products individual evaluation procedures did not lead to the same conclusion. This is caused primarily by the fact that the individual procedures chosen for the evaluation provide only limited capabilities to detect different qualitative attributes of products. The sensory and physical and chemical tests in particular have only limited capability to detect the key qualitative attributes. On the other hand, though, in many cases the products are different in terms of sensory attributes, but this is not really caused by the producer's intention, but rather by natural fluctuation of quality of raw material inputs, or by the manufacturing process. The evaluation commission was to consider all these possibilities and express the final statement, even though different from all the individual evaluations. The reasons are detailed in individual evaluation protocols.

Trademark	Product	Sensory ev.	Preferences	Chemical testing	Declaration	Conclusion	Unit price FRG	Unit price CZ
Movenpick	Bourbon Vanilla	S	-	S	S	S	0,42 €/100 ml	0,52 €/100 ml
Pfanner	100% Orange Juice	N	CZ	S	S	S	1,49 €/1 l	1,33 €/1 l
Pepsi cola	Pepsi Cola	S	-	N	N	N	0,63 €/1 l	0,31 €/1 l
Sprite	Sprite	N	No	N	N	N	0,65 €/1 l	0,73 €/1 l
Nestea	Ice Tea Lemon	N	FRG	N	N	N	0,86 €/1 l	0,87 €/1 l
Jacobs	Kronung	N	No	N	S	N	1,95 €/100 g	1,91 €/100 g
Segafredo	Espresso Casa	S	-	N	S	S	1,50 €/100 g	1,23 €/100 g
Muler	Blueberry Box	N	FRG	S	S	S	0,95 €/100 g	0,39 €/100 g
Danone	Activia Strawberry	N	CZ	N	N	N	0,40 €/100 g	0,33 €/100 g
Leerdamer original	Leerdamer Original	N	No	S	S	S	1,42 €/100 g	1,38 €/100 g
Unilever	Rama	N	FRG	N	N	N	0,32 €/100 g	0,32 €/100 g
Iglo	Fish Fingers	N	FRG	S	N	N	0,39 €/100 g	0,80 €/100 g
No more	Tuna can	N	CZ	S	N	N	1,68 €/100 g	1,09 €/100 g
TULIP	Luncheon Meat	N	No	S	N	N	0,44 €/100g	0,86 €/100 g
PICK	Hungarian Salami	N	No	S	S	S	2,12 €/100 g	1,46 €/100 g
Meica	Frankfurter Sausages	N	FRG	S	S	S	0,99 €/100 g	1,27 €/100 g
Carbonell	Extra Virgin	S	-	S	S	S	0,96 €/100 ml	0,98 €/100 ml
Heinz	Ketchup	S	-	S	S	S	0,46 €/100 ml	0,32 €/100 ml
Schawartau	Strawberry	N	CZ	S	S	S	0,61 €/100 g	0,69 €/100 g
Kinder	Kinder Surprise Egg	S	-	S	S	S	0,69 €/1 ks	0,69 €/1 pc
Stork	Toffifee	S	-	S	S	S	0,95 €/100 g	1,16 €/100 g
Bounty	Bars	S	-	S	S	S	0,72 €/100 g	0,76 €/100 g
Barilla	Arrabbiata	S	-	S	S	S	0,37 €/100 g	0,75 €/100 g
Bonduelle	Gold Sweet Corn	N	No	S	S	S	0,35 €/100 g	0,43 €/100 g

Table legend: S=products evaluated as the same; N=products evaluated as different

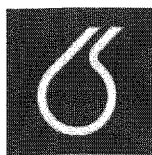
Unit price (the table does not give the context of the purchase of goods – e.g. purchase of goods “on promotion” etc.)

Sensory ev. – result of the triangle test; preferences – result of the preference test

Chemical – evaluation based on the evaluation by the commission which availed of the results of physical and chemical tests

Declaration – result based on the decision of the commission that assessed the packaging of individual products presented thereto

Conclusion – result based on the decision of the commission after considering all the submitted information and its context



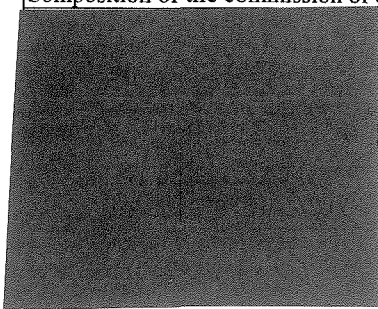
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Conclusions:

Of the total number of 24 presented samples, the commission recommended the exclusion of one product (canned tuna) on account of doubts concerning the marketing intent and trademark (marked in red in the table). Of the remaining 23 products, 8 products were evaluated as different which constitutes 35 % of all the evaluated products. The strongest argument for concluding that the products are different was the information on the product labels. The evaluation did not aim to clearly determine which of the products is of "better quality". We believe that such assignment would not even be appropriate since there were no qualitative attributes pre-defined which should be the subject matter of evaluation. We also assume that any definition of such attributes and weights of the applied criteria could always be criticised for constituting a biased assessment. Thus, the quality in its broader sense perceived as the compliance with the requirements and expectations of users cannot be examined by means of methods which would not include also public surveys.

Declaration:

The members of the commission hereby confirm by their signature that they are not linked in any way whatsoever to the producer of evaluated products and that their evaluation was based especially on their expertise and experience. They also confirm that they have attended all the meetings of the commission and that they agree with its outputs.

Composition of the commission of evaluators:	Signature:
	

Annexes:

1. Protocols on sampling
2. Protocols from physical and chemical tests
3. Protocols from sensory evaluation
4. Protocols of the evaluation commission
5. Final presentation