

## RISK PERCEPTION OF FOOD ADDITIVES IN HUNGARY

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### ABSTRACT

On the basis of international surveys, Hungarian consumers stated serious aversion against food additives.

The aim of our work was to get more detailed information about Hungarian consumers' risk perception with special regard to food additives.

For this purpose a self-administrated questionnaire was developed. Four hundred respondents completed the questionnaires in 2009. The collected data were analysed by the SPSS 18.0 statistical software.

Respondents expressed serious aversion against food additives amongst different risk factors. The responses on different statements highlighted that consumers did not have proper knowledge about food additives.

In order to explore the directly not perceptible connections, factor analysis was done, but the "goodness-of-fit test" did not show significant fitting. So with the help of the factor analysis' results 5 principal components were created.

According to the results it can be stated that - similarly to previous studies - Hungarian respondents felt food additives to be hazardous. On the basis of the principal components respondents who were not satisfied with the quantity of the information about food additives, had mixed and ambiguous knowledge about food additives. Thus Hungarian consumers need more authentic information to help their food choice to be more established and be more conscious.

### 1. INTRODUCTION

Due to the changing lifestyle and consumption habits and furthermore the continuously appearing food scandals and media awareness consumer's mistrust against food additives is constantly rising. According to the survey of the Eurobarometer (2006a) 13% of the respondents stated that eating healthy diet involved the avoidance of foods containing food additives (Figure 1), while in Hungary this rate was 16%.

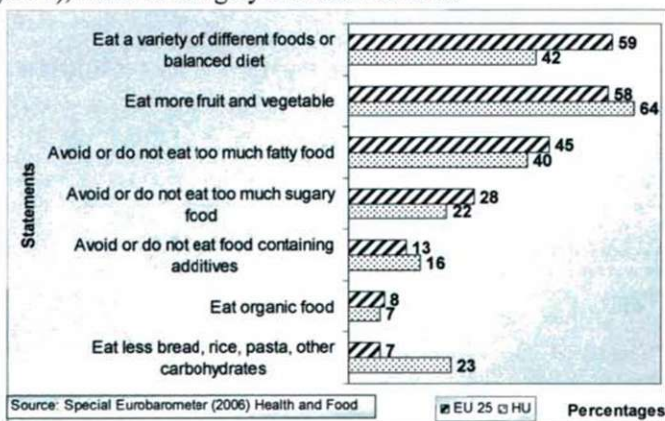


Figure 1. "What do you think eating "healthy diet" involves?"

On the basis of another survey (Eurobarometer, 2006b) 61% of the European participants worried about "additives like colours, preservatives and flavorings". This rate was higher in Hungary 76% (Figure 2) too.

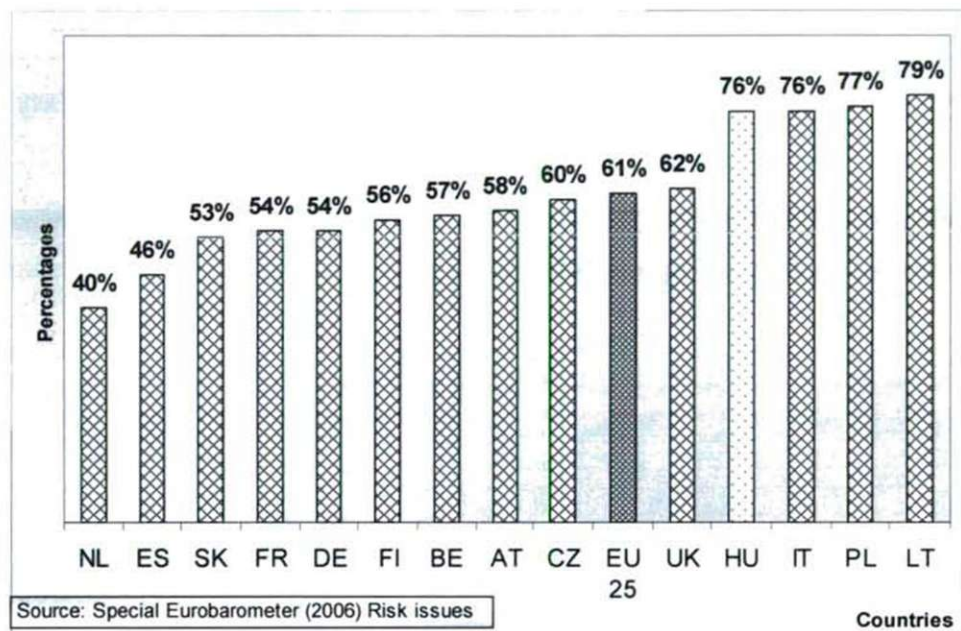


Figure 2. Worry against food additives

## 2. MATERIALS AND METHODS

In order to get information on the perception of the Hungarian adults' about food additives a self-administrated questionnaire was developed in the Central Food Research Institute. Based on the snowball method 400 respondents completed the questionnaires in spring of 2009. The collected information was analysed by the SPSS 18.0 statistical software.

## 3. RESULTS

### 3.1 Judgement of different risk factors

Respondents expressed serious aversion against the listed potential risk factors. The most hazardous factor was the "pesticides" (1.85 on a 1-5 Likert scale), while the least hazardous was the "gases of the modified atmosphere in food packaging" (3.06) (Figure 3).

There was a small difference between the judgement of "Food additives" (2.64) and "E numbers" (2.66), thus on the basis of this result Hungarian consumers were aware of the proper connection between these two concepts.

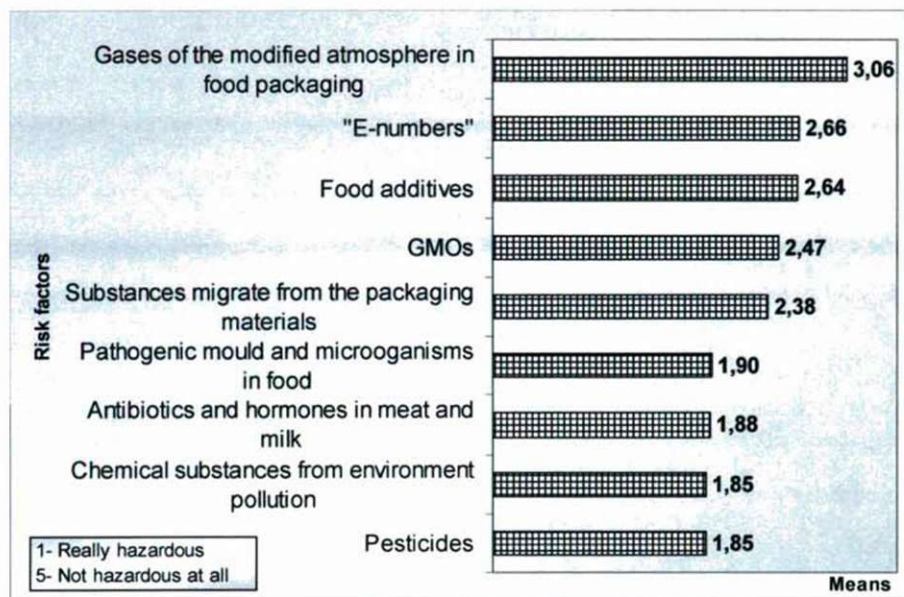


Figure 3. Judgement of different risk factors

### 3.2 Knowledge of food additives and "E-numbers"

Our previous result was confirmed by two statements. 84.8% asked were aware what food additives, and 72.5% that what "E-numbers" meant on food packaging. However only 53.5% understood the statement that "Every food additive can be linked to an "E-number".

### 3.3. Principal component analysis

In order to explore the directly not perceptible connections about respondents' knowledge and attitude related to food additives, factor analysis was done, but the "goodness-of-fit test" did not show significant fitting. So with the help of the factor analysis' results principal components were created. 7 principal components were differentiated from the 48 statements, but two of them were not created dimension (Table 1).

Table 1. Some statements of the principal components with their factor components and means

Principal components with some statements	Factor components	Means <sup>1</sup>	N (means)
<b>1. Food additives' risks</b>			
Safer foodstuffs contain fewer additives.	0.727	3.79	389
One reason of the more often occurring allergies is the foodstuffs' food additive content.	0.769	3.90	352
Excessive food additive consumption can cause cancer.	0.706	3.68	340
<b>2. Indispensability of food additives</b>			
Permitted food additives pose no danger to our health.	0.683	2.31	382
Food additives are safe in the amount used by food industry.	0.637	2.80	382
Preservatives are necessary for safety foodstuffs.	0.547	2.92	381
<b>3. Judgement of food safety</b>			
I think food safety is declined because of the accession to the EU.	0.700	3.00	372
I believe that labelling information reflects the truth.	-0.698	2.72	396
Food industry utilizes only permitted additives.	-0.644	2.88	378
<b>4. Knowledge of food additives</b>			
It is difficult to be familiar with information about food additives.	0.638	3.85	399
It is a fundamental human right to know what foodstuffs contain.	0.544	4.80	399
Different food additives mean different risks.	0.677	4.23	383
<b>5. Food additives' communication</b>			
Consumers have to have more information about food additives to reduce risks.	-0.504	4.32	398
I am satisfied with the information about food additives on the labelling.	0.849	2.24	394
I am satisfied with the media information about food additives.	0.828	1.93	395

<sup>1</sup> 1- Not agree at all 5- Strongly agree

On the basis of the principal analysis it can be stated that Hungarian respondents' attitude regarding food additives was aggregated into 5 components.

### 1. Food additives' risks

This principal component contains statements related to health related risks of food additives. Respondents reported strong connection between different diseases like allergy (3.90) and cancer (3.68). Furthermore this component contains statements like additive free foodstuffs are safer than foodstuffs containing number of additives (3.79).

### 2. Indispensability of food additives

This principal component summarized statements that food additives have an important role in foodstuffs, and their utilization is necessary. Participants were distrustful against the food industry (2.80), they did not perceive strong connection between the utilization of food additives like preservatives and safe foodstuffs (2.92). Their worries about health destroying effect of food additives (2.31) appeared again.

### 3. Judgement of food safety

This dimension shows that attitude related to food additives is influenced by common factors like food safety and the judgement of the work of the authorities'. In addition, trust in the producers rule observance practice and the pertinence of food labelling information. Hungarian respondents did not believe in food labelling information (2.72) and in

producers (2.88), furthermore they thought that the level of food safety was not increased by the accession to the European Union (3.00). This can be caused partly by the constantly increasing number of appearing foreign foodstuffs on the Hungarian market.

#### *4. Knowledge of food additives*

The "Knowledge of food additives" principle factor summarizes the claims related the differentiated knowledge of Hungarian respondents about food additives. On the basis of the results it was not too difficult for the Hungarian respondents to be familiar with information about food additives (3.85) and they strongly agreed with the statement that "Fundamental human right is to know what foodstuffs contain" (4.80). It was favourable that they thought that they could make difference between the hazardous levels of food additives (2.88).

#### *5. Food additives' communication*

The fifth dimension bands together claims in connection with the communication about food additives like media, labelling and the level of knowledge. According to the answers it can be stated, that most of the respondents agreed (4.32) with the statement that "Consumers have to have more information about food additives to reduce risk" in addition consumers' dissatisfaction with information about food additives on food labellings (2.24) and the media (1.93).

### **3.4. Results for the planning of consumer communication**

Independent principal component connection resulted in relevant conclusions. On the basis of linear regression those who reported higher demand for differentiated information about food additives were significantly conducted with the information of the media and food labellings. Thus one segment of the consumers needs more detailed information, so it is important to find the best way to satisfy of these requests e.g. with easy-to-understand guidelines. Consumers' present negative perception related food additives can be moderated with the help of detailed and differentiated information.

## **4. CONCLUSIONS**

According to the results it can be stated that - similarly to previous international studies - Hungarian respondents felt food additives to be hazardous.

On the basis of the principal components Hungarian participants expressed worried about the contingent health destroying effects of food additives and stated distrust against food industry. Thus Hungarian consumers need more authentic information about food safety and food additives to help their food choice to be more established and conscious.

In order to get more exact and detailed knowledge about the different consumer segments and to determine the required steps for a more effective consumer communication cluster analysis will be done on the basis of the principal components.

## **REFERENCES**

1. Eurobarometer (2006a): Eurobarometer 246: Health and food.  
[http://ec.europa.eu/health/ph\\_publication/eb\\_food\\_en.pdf](http://ec.europa.eu/health/ph_publication/eb_food_en.pdf)
2. Eurobarometer (2006b): Eurobarometer 238: Risk Issues.  
[http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_238\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_238_en.pdf)