

## Quantitative and qualitative monitoring of food additives on the romanian territory, in 2009

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### Abstract

Food additives are diverse substances not consumed as food, that are not specific food ingredients, have or not a nutritional value, but are intentionally added to food stuff in technological purposes. In 2009, as in the previous years, the use of main food additives was monitored, in the frame of the National Program II (The monitoring of the determinant health factors from the work and life environment). The monitoring has brought to light the presence of a certain number of inaccuracies and mistakes linked with additive use, showing the necessity of carrying out the activity of control, in order to respect the general legislation in force in the country and to avoid accident and incidents leading to serious food safety problems.

**Keywords:** food additives, monitoring, food safety food labels

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### 1. Introduction

Additives are compounds largely used in the food industry. Practically, the majority of processed food available today has at least one additive in its composition [2]. They are used for different purposes, from technological, to sensorial enhancement. Before including any additive in use, they are thoroughly investigated, in order to obtain solid proofs that they are harmless for the potential consumer. In spite of this, there is a certain amount of fear in the general population that additive use can be dangerous, based on the fact that some of these substances are manufactured in laboratories and don't have a natural origin.

In order to exclude any potential hazard of the use of additives, in our country, as in other countries from the European Community, their use is strictly regulated, either in terms of purity, or regarding the allowed concentration and the foodstuff in which the substance can be introduced.

The main law in force is the order of the ministry of health 438/295/2002 for the approval of norms regarding food additives ment to be used in foodstuff for human consumption, completed and modified subsequently by the orders nr. 656 / 2003, nr. 62 / 2004, nr.154 / 2005, nr.692 / 2007, nr.1374 / 2007, nr.2168 / 2007, nr.87 / 2008, nr. 1744 / 2008, nr. 192/2009, that are harmonised with following communitarian standards: directive 89/107 EC, Directive 94/36/CE regarding purity criteria for colourings, Directive 94/35/CE regarding purity criteria for sweeteners, Directive 95/2/CE and 2008/84/CE regarding purity criteria for other additives than colourings and sweeteners, Decision 2002/247/CE, Directives 2006/33/CE, 2006/52/CE, 2006/128/CE, 2006/129/CE, 2008/60/CE, Directive 2008/84/CE, Regulation 884/2007/CE [1]. Also the Regulation CE nr. 1333/2008 of the European Parliament and of the Council regarding food additives is in force since 20.01.2009., modifying the former legislation and being applied by all the countries of the Community since then.

Even more, each year in Romania is carried out an inventory of used additives, their origin, their purity, the adequacy of their use in a certain product, the detailed location and data contact of food producers that use high amounts of additives, the explicit presence of the name of the additive on the food labels, etc. This large area of information is useful for keeping under close scrutiny additives and their presence in the food chain and to add convincing data for the sanitary authorities and general population advocating the lack of danger of the widespread use of additives. In the present article we present some of the meaningful data resulted during additive supervision in Romania, in 2009.

## 2. Materials and methods

In 2009, as in previous years, the use of main food additives was monitored, in the frame of the National Program II (the monitoring of the determinant health factors from the work and life environment). Data from the Territorial Public Health Authorities were gathered and analyzed at the Public Health Regional Center of Targu Mures. From the territory, the following data were asked (all included in the specific methodology sent in all counties before the beginning of the activity):

### 1. The inventory of the county producers of the following foodstuff:

- Meat products (preserves and coldcuts);
- Soft drinks;
- Fruit preserves(jam, jelly, marmalades, compote);
- Dairy products (yoghurt, cream, soft cheese, etc).

### 2. The inventory of foodstuff and used additives:

- The recipe control and the additive registration (name + „E” code);
- The origin of the additive;
- The label control (the presence of the name of the additives on the label and the correspondence with actual additives present in the product) (Health Ministry order nr. 438/2002);
- Verification of the allowance of the presence of the additive in the specific foodstuff;
- The presence of the certificate of quality of the additive;

All data has been centralised and analyzed at the Public Health Center.

## 3. Results and Discussion

There have been centralised reports of a total number of 1571 food products, from which 82,28% are meat products, 12,52% soft drinks 5% , dairy products and 0,19% fruit preserves (art c)

The most frequently used additives are presented in table 1, detailed on each food group controlled in 2009 (Table 1). Acidifiants, preservatives and sweeteners are on the first places for soft drinks, taste enhancers and preservatives, for meat products, thickening agents and colourings, for fruit preserves and thickening agents and melting salts, for dairy products. There can be noticed that meat products are leaders in additives, with a number of 114, thus being main contributors to our additives intake. Soft drinks follow, but have just a half of the number of additives from cold cuts.

The origin of food additives is figured in table 2. It can be seen that the biggest source of additives is Germany. Unfortunately, 22,3% of additives don't have the country origin specified, finding that can hinder the traceability of the substances and, hence, the appliance of swift measures in case of rapid alert.

The practically used additives are accurately written on the foodstuff label, and only in a percent of 2,16% of all products this condition was not fulfilled (1,58% for soft drinks, 0,46% for meat products and 0,12% for dairy products), as also shown elsewhere [3-9].

Producers declared that the quantities of additives used, in conformity with the food recipe, correspond with laws in force in 97,4% of cases and only in 2,6% of the cases this condition was not respected. Reasons are diverse: from the secrecy of the recipe, to the sincere recognition of the fact. The legal quantity was not respected in soft drinks (2,25% of the total number of products) and meat products (0.35% of the total number of products)

In the majority of cases producers have the quality certificate of the additive (91,1% of all). For the remaining 8,9%, producers couldn't present the respective certificate, rising serious questionmarks regarding the safety of their products. The foodstuff involved was: meat products, soft drinks and dairy products.

**Table 1.** Most used additives in 2009

Food category	Total number of food products in the category	Total number of additives	Name of the additive	Frequency in the category(%)
Soft drinks	193	60	Citric acid	88%
			Sodium benzoate	64,8%
			Potassium sorbate	42,5%
			Sodium cyclamate	36,8%
			Aspartame	35,2%
			Acesulfame potassium	34,2%
Meat products	1268	114	Monosodic glutamate	72%
			Sodium Nitrite	64,8%
			Carminic acid	45,2%
			Ascorbic acid	41%
			Carraagenan	33%
			Diphosphates	29,5%
Fruit preserves	3	15	Pectin	66,7%
			Modified starch	66,7%
			Citric acid	66,7%
			Carminic acid	66,7%
			Beta carotene	66,7%
Diary products	77	46	Carraagenan	28,3%
			Poliphosphates	24%
			Calcium chloride	23%
			Citric acid	15%
			Diphosphates	13%
			Pectin	13%

**Table 2.** Origin of food additives

Country	Total/country	Percent
Germany	2426	27,2%
Romania	1346	15,1%
Austria	827	9,3%
Cech Republic	466	5,2%
China	401	4,5%
Belgium	245	2,75%
Other countries(specified)	1216	13,65%
<b>Not specified</b>	<b>1990</b>	<b>22,3%</b>

#### 4. Conclusion

In conclusion, the use of food additives is generally under a strict supervision in Romania and laws in force are respected without any doubt. But the presence of a certain number of inaccuracies and mistakes linked with their use shows the necessity of carrying out the activity of control, in order to respect the general legislation in force in the country in this domain and to avoid accident and incidents leading to serious food safety problems.

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