

Survey on food additives potentially dangerous of marketed industrial product

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Abstract

A total number of 247 participants were inquired via a questionnaire, 125 women and 122 men (sex ration 0.97). 142 (57,48%) of consumers had no information on potentially harmful food additives while 105 (42,10%) were aware but despite this, they have never consulted the labeling and do not use this information when buying their food products. According the age, the rate of sensitized consumers was 57,08% for individuals under the age of 40 years and 42,91% for individuals over the age of 40 years. This rate was 55,2% and 41,8% for women and men, respectively. A total of 101 food product labels were subjected for the study, including 71 products of local origin and 30 products from Europe marketed in Algeria. Potentially harmful food additives mentioned on packaging, for local products, were : tartrazine (E102), sunset yellow FCF S(E110), Cochineal Red A (E124), caramel (E150), carotenoids (E160), sodium benzoate (E211), carboxymethylcellulose (E466), mono- and diglycerides of fatty acids (E471), lecithin (E322). titanium dioxide (E171), natamycin (235), phosphoric acid (338), gum arabic (414), mono sodium glutamate (621), and xylitol (967). Whereas, for the imported products, harmful food additives, were the following: Copper-chlorophyll and chlorophyllin complexes (E141), caramel (E150), lecithin (E322), calcium orthophosphates (E341), mono and diglycerides of fatty acids (E471), polyglycerol polyricinoleate (E476), and propylene glycol esters fatty acids (E477). In conclusion, the Algerian consumer, although he is informed of the potential danger of food additives, he is nevertheless neglectful when it comes to the consumption of these products. Further studies should evaluate the impact of harmful food additives on the health of the consumer.

Keywords: food additives, risks, food dye, consumer

1. Introduction

Food Protection Committee of the Food and Nutrition Board defines food additives as following : “a substance or mixture of substances, other than a basic foodstuff, which is present in a food as a result of any aspect of production, processing, storage, or packaging”. The term does not include chance contaminants. Currently, food additives are divided into six main categories: nutritional additives, preservatives, colorants, flavourings, texturizers and other additives. The sometimes contradictory requirements of food industry firms and consumers have led to the use of numerous food additives [1]. Unfortunately, additives are regularly implicated in the symptoms of various diseases.

Food-dyes are often accused by the general public of many ailments: chronic urticaria, eczema, asthma, cancer, and attention deficit and hyperactivity disorders in children, etc. [2, 3]. Food-dye allergies are frequently reported but not often confirmed [4].

In addition to incriminating a particular additive, a categorical food investigation may lead to the identification of possible imbalances responsible for non-specific illnesses [1].

2. Material and Methods

2.1. Survey participants

A total number of 247 individuals, men and women (children not included) voluntarily participated in this survey which focuses on the assessment of the state of knowledge of consumers on food additives.

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The participants were randomly chosen from different regions of south-West Algeria. Table 1 contains the necessary information from the participants. The participants were subjected to a questionnaire (data not shown).

Table 1. Informations on Survey participants.

Number of Participants	247
Women	125
Man	122
aged under 40 years	141
aged more than 40years	106

2.1. Sampling

A total of 101 food product labels were subjected for the current study, including 71 products of local origin and 30 imported products marketed in Algeria. The selected products are inexpensive and frequently consumed by the local population including children.

2. Results and Discussion

The candidates who participate to this study were willing and very curious. Among 247 participants (125 women and 122 men, sex ration 0.97) inquired via a questionnaire (data not shown), 142 (57,48%) of consumers had no information on potentially harmful food additives while 105 (42,10%) were aware but despite this, they have never consulted the labeling and do not use this information when buying their food products. According the age, the rate of sensitized consumers was 57,08% for individuals under the age of 40 years and 42,91% for individuals over the age of 40 years. This rate was 55,2% and 41,8% for women and men, respectively.

Today, more and more books and health specialists denounce the toxicity of a large number of food additives which, while being allowed, are often dangerous for our health. Our body is not made to consume such large quantities and even less that of our children. Unfortunately, he publications of the literature, often limited to clinical cases, carry little conviction; For example, the diagnosis of allergy to food additives is announced by the clinician or the patient himself.

In the current study a total of 101 food product labels were collected, including 71 products of local origin and 30 products from Europe marketed in Algeria.

Potentially harmful food additives mentioned on packaging, for both local and imported products, were as shown in table 2 : Colorants Preservatives

Acidity regulator Gums Emulsifier Flavor enhancers Sugar substitute Food fatty acid derivatives.

Colorants –E100 to E180 - are often used in food products to attract the consumer, but most are harmful to our health. in this study several dyes were found as Tartrazine, Sunset yellow , Cochineal Red A, Caramel Carotenoids, Titanium dioxide , Copper-chlorophyll and chlorophyllin.

For many years tartrazine (E102) has been regularly involved in asthma, rhinitis, urticaria, atopic eczema, anaphylactic shock [1]. The prevalence of tartrazine intolerance is less than 0.1% of the general population [5]. This colorant is prohibited in certain countries (Austria, Finland, Norway, Tunisia) [1]. Cochineal Red A (E124) is linked to hyperactivity in children, the effect can be triggered or amplified with benzoate preservatives (E210, E215) [6-8]. Some authors believe that the caramel (E150) could contain monosodium glutamate (E621) and would be carcinogenic and mutagenic [8]. To date, no toxicity effects are known about Copper-chlorophyll and chlorophyllin (E141). Moreover, the reports are contradictory by the high copper content.

Three kind of preservatives were detected in the local products studied here, Sodium benzoate (E211), Carboxymethylcellulose (E466) and Natamycin (E235). According to the literature there are many doubts about the safety of sodium benzoate which is a fungicide-antibacterial used as a preservative in food. Carboxymethyl cellulose, in high doses can be involved in digestive disturbances, intestinal problems, bloating, diarrhea, constipation [8].

Furthermore, certain emulsifiers are present in the local and imported products such as lecithin (E322), Mono- and diglycerides of fatty acids (E471), polyglycerol polyricinoleate (E476) and propylene glycol esters of fatty acids (E477). The involvement of lecithin in allergology is minor given the extent of its use, nevertheless this additive can induce digestive disorders and discomfort [1].

Actually, the three other food fatty acid derivatives (E471, E476, E477) are excluded from organic food in the European Union as in the United States. From harmful effects serious are now accepted as breast cancer, hypercholesterolemia, atherosclerosis, diabetes (insulin resistance), cardiovascular risks, the liver dysfunction, reprotoxicity with obstetric effects, as well as proven or suspected psychiatric consequences [9].

Table 2. Harmful food additives in food product labels from local and Europe, marketed in Algeria

Origin	Categorie	Name	European Union code number (E)
Local products	Colorants	Tartrazine	E102
		Sunset yellow	E110
		Cochineal Red A	E124
		Caramel	E150
		Carotenoids	E160
		Titanium dioxide	E171
	Preservatives	Sodium benzoate Carboxymethylcellulose Natamycin	E211 E466 E235
Acidity regulator	Phosphoric acid	E338	
Gums	Arabic gum	E414	
Emulsifier	Mono- and diglycerides of fatty acids Lecithin	E471 E322	
		Flavor enhancers	Mono sodium glutamate
Sugar substitute	Xylitol	E967	
Imported products	Colorants	Copper-chlorophyll and chlorophyllin Complexes caramel	E141 E150
		Emulsifier	Lecithin Mono and diglycerides of fatty acids
	Acidity regulator		Calcium orthophosphates
	Food fatty acid derivatives	Polyglycerol polyricinoleate Propylene glycol esters fatty acids	E476 E477

In processed foods, several additives are also used such as orthophosphate of calcium (E341), aspartame (E951), xytitol (E967), Carotenoids (E160), Titanium dioxide (E171). Some of these additives, are doubtful because the tolerable doses have not been studied.

3. Conclusion

Food additives are one of the most beautiful creations of modern human being but also one of the most startled and potentially dangerous scams all over the time. We have never eaten so much, in terms of quantity, and we have never been malnourished in terms of quality. Industrial or ultra-processed foods are pointed out by several researchers all over the world. Certain diseases of the digestive tract, allergies, and still other pathologies that are in fact poorly diagnosed are an unmistakable and inevitable cause of the food additives contained in these foods.

Compliance with Ethics Requirements. Authors declare that they respect the journal's ethics requirements. Authors declare that they have no conflict of interest and all procedures involving human / or animal subjects (if exist) respect the specific regulation and standards.

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