

FOOD ADDITIVES: ROLE, REGULATION AND HEALTH EFFECTS

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Abstract

Current trends show that the continuous evolution of technology and the consumption of packaged foods in modern society leads to an increase in the use and need of food additives. In the last 50 years, the development of science and food technology has led to the discovery of many new substances that can perform numerous functions in food processing and preservation.

More than 2000 additives are used worldwide. This problem is in the attention of specialists because chemical additives are substances foreign to the body, they raise problems of their metabolism and neutralization and as a result, they have negative effects.

Eating highly processed and refined foods affects health. More than 40% of annual deaths in Europe are determined by medical or surgical pathologies (heart disease, cancer associated with obesity, diabetes, etc.) that are correlated with an unhealthy diet, which shows us that the population still exposes itself to dietary risks, without knows their effects.

Key words:, additives, foods, quality, dyes

INTRODUCTION

Food additives are ingredients that are used in the preparation of food products in order to improve their safety, nutritional value and/or appearance. Used since ancient times to obtain food, food additives have diversified, the number of those authorized for use by the European Union (Regulation 1333/2008) being constantly increasing.

The additives allowed at this time are natural, modified natural or artificial substances. Few consumers suspect that behind the name E300 is vitamin C, al E307, vitamin E, al E160, various carotenes, al E140, chlorophyll, the green pigment that allows plants to breathe. Guar gum (E412), extracted from an exotic plant, is a well-known hypocilesterolemiant, lecithin (E322) is a nervous system tonic, xylitol (E967) is a substance with marked anticariogenic action. And the examples could go on.

It is clear that nutrition news, while of interest, is exploited to the max and often distorted. But removing from the discussion this type of sensational information, it must be said that both regarding additives and any other food component, isolated and non-representative studies, possibly carried out on laboratory animals with a metabolism different from that of humans, must be taken into account, but studies that collect and process information from a large number of researches, carried out over a long period of time (meta-analyses), on a large number of people. Only in this way can a clear and solid conclusion be reached regarding the effects of a food compound on human health

MATERIAL AND METHOD

The study was carried out over a period of 3 months (January 2024- March 2024). The target population for this study was

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represented by 100 people from the online environment.

We used an opinion questionnaire with closed questions to enhance the objectivity of the study.

Questionnaire is a study tool chosen for this research due to the fact that it ensures obtaining a large amount of information by collecting data related to the chosen topic, only once at a predetermined time.

I also considered that through the written questionnaire the results were not influenced by close friends, thus not risking the insignificance of the entire study. Research through the questionnaire first of all assumed a whole process of study, starting from the composition of the samples and up to the analysis of the results given by the processing of the data obtained through the survey.

In the research activity, the steps in the scheme below, taken from Hill, E. and Sullivan, T, were constantly followed, so as to ensure an efficiency of the proposed study.

The questionnaire drawn up is a self-administered opinion questionnaire, thus eliminating the influence of some survey operators and consists of an online form that was filled out individually by each of the participants in this study. It has two parts, one for identifying the data of those surveyed and one that includes the actual data needed for the study.

The structured questionnaires were completed in 10-15 minutes and retrieved immediately afterwards, thus ensuring spontaneity of responses.

After administering the questionnaires, the next step was to process the data by entering it into a database.

Data processing is represented in the first phase by checking how to complete the questionnaires. This is when it is checked whether all questions have answers annotated on the form, whether the questionnaire has been filled in uniformly,

whether the control questions have the same type of answer that the respondents have given before

RESULTS

100 people between the ages of 18 and 70 participated in this study, with an average age of 44.

In addition to age, a criterion followed in the work is the background of these interviewed persons. After processing the data, it was found that the vast majority of people came from the urban environment (71 cases -71%). Those who came from rural areas represented a percentage of 29%.

This trend can also be explained by the fact that access to information and personal training is easier in the urban environment.

The distribution of the participants by gender of the interviewed people showed a percentage of 57% for the female sex and 43% for the male sex.

Regarding the frequency of the main meals, 42% of the participants stated that they eat 3 meals a day. Irregular consumption of meals was identified in a percentage of 29%.

26% state that they eat 2 main meals a day, and a percentage of 3% eat 1 main meal a day.

Busy schedules, daily stress and industrialized food processing are the main factors that have led to the change in eating habits.

Cardiovascular disease, diabetes, obesity or cancer are diseases with an increasing prevalence among the population, which can be prevented with the help of a nutritionally balanced diet. Specialists draw attention to the fact that more and more people tend to eat more and more high-calorie foods and eat at irregular times.

Poor eating habits are a major concern for public health among young people, they have an irregular meal rhythm, they consume many snack products

(prepackaged and high-calorie), and the food options are chaotic, without any nutritional interest.

Regarding the main place of consumption of the daily meals, 70% of the participants stated that they ate the meals at home and a percentage of 25% said that they did not have a stable place regarding the consumption of the main meals.

In developed societies, the incidence of overweight, obesity and metabolic diseases is constantly increasing. Very sedentary lifestyles and easy access to high-calorie foods are the two main reasons that could explain this epidemic.

The habit of eating cooked food, at fixed times, in the family space gradually turns into the habit of eating semi-prepared products in the city, according to an irregular schedule.

According to the study, 57% of the people interviewed state that they have information about food additives, however, a percentage of 27% know little or no information at all (7 cases - 7%), and 9% of the people interviewed are not interested in this topic.

From the analyzed group, only 25% of the respondents consider the content of additives when purchasing a food product.

The vast majority of the respondents are influenced by the affordable price of the products without taking into account the ingredients and their nutritional value.

During the industrial processing of foods, various additives are often added to enrich their taste.

Regarding the attitude of respondents to the study regarding food additives, it is as follows:

- 55% state that they try to avoid foods with added additives;
- 42% do not take this aspect into account;
- 3% consume only organic food.

To the question "According to you, what is the role of additives?" the vast majority (83%) stated that additives are used "to

improve the taste, color and shelf life of food". Only a percentage of 17% stated that they are used for "Increasing the net weight of food products".

To the question "Do you consider that products containing food additives, consumed regularly, negatively influence your health?" 66% of the respondents affirmed that regular consumption negatively influences their state of health.

DISCUSSIONS

The topic of food additives and their side effects is very controversial. Several sources say that "E's" in food are dangerous and can harm our health. It is mainly based on synthetically produced substances, such as the controversial aspartame or monosodium glutamate.

They are allowed in the European Union and do not pose any risk to human safety, provided that the optimal daily dose is maintained.

One of the biggest concerns about additives is their impact on health. In general, regulatory authorities, such as the European Food Safety Authority (EFSA) and the FDA in the US, evaluate and approve additives that are deemed safe for consumption. However, there are discussions about the long-term effects of some additives, such as the carcinogenic potential of some or the link to allergies, intolerances or other health problems, such as monosodium glutamate or aspartate

Monosodium glutamate or MSG, aka E621, is one of the most common flavor enhancers and is considered by many to be one of the worst additives on the market. Potential side effects can be: nausea, asthma, headache.

Used for industrial use, monosodium glutamate is obtained by bacterial fermentation of molasses. Once added to food, it enhances aroma and taste. Many say it would create an "addictive" sensation for the irresistible taste.

Monosodium glutamate is produced on an industrial scale today and is found in countless products on the store shelf, but also used in the kitchen of many restaurants. E 621 is used in abundance in Chinese food, processed foods, sausages, fast food or soy sauce. Another central topic is the differentiation between natural and synthetic additives. Natural additives are often considered less expensive than synthetic ones, although this is not always supported by studies. For example, citric acid and pectin are natural additives often used in the food industry, while others, such as tartrazine (a synthetic dye), have been criticized because of possible effects. Another important topic is related to information transparency. Consumers are becoming increasingly aware of what is in the food they eat and are demanding clear labeling of products containing additives. Discussions here focus on whether the information is sufficiently accessible and comprehensible to consumers. The production of food additives, especially synthetic ones, also raises problems related to the ecological impact. Many manufacturing processes can involve chemicals that have a negative impact on the environment, driving the demand for more environmentally friendly alternatives. Governments and health agencies play an important role in regulating the use of food additives. They define the permissible limits for different types of additives and monitor their compliance. There are also discussions around the harmonization of international regulations to better protect consumers.

CONCLUSIONS

Current trends show that the continuous evolution of technology and the consumption of packaged foods in modern society leads to an increase in the use and need of food additives. Over the past 50 years, scientific and food technology

developments have led to the discovery of many new substances that can perform numerous functions in food processing and preservation.

For decades, the food industry has continuously developed new chemical processes to handle, preserve and transform the food we eat. Using certain chemicals, scientists can recreate natural flavors, color foods to make them appear more "natural" or "fresh," preserve foods for longer periods of time, and create modified versions of bread, vegetables, meat, dairy and many more commonly used foods.

Information about nutrition labeling and the health benefits of foods are two of the important factors that influence decision making. The modern packaging label has been responsible for educating the consumer about a particular product by multitasking such as attracting, promoting and motivating to the point of purchase through information on the label.

Consumers should read the label of the food products they consume in order to avoid those products that have a high content of chemical additives, sugar, salt, calories, for a healthy lifestyle.

Greater emphasis should be placed on informing and educating consumers about the health effects of food additives.

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