

6. Farooq, M.; Hussain, M.; Wakeel, A.; Siddique, K.H.M. Salt stress in maize: Effects, resistance mechanisms, and management. A review. *Agron. Sustain. Dev.* 2015, 35, 461–481.  
[Google Scholar] [CrossRef]

УДК 664

## **FOOD ADDITIVES AND THEIR EFFECT ON HEALTH (ХАРЧОВІ ДОБАВКИ ТА ЇХ ВПЛИВ НА ЗДОРОВ'Я)**

*Негреско А. Є. – здобувач вищої освіти групи ХТ 2/1*

*Науковий керівник - Саламатіна О. О., кандидат філологічних наук, доцент кафедри іноземних мов МНАУ*

*У статті йдеться про харчові добавки, види харчових добавок, ризики для здоров'я людей від харчових добавок. Чому в нашу їжу додають хімічні речовини?*

***Ключові слова:** харчові добавки, хімічні речовини, вплив харчових добавок, види харчових добавок.*

*This article discusses food additives, types of food additives, the risks to human health from food additives. Why are chemicals added to our food?*

***Keywords:** food additives, chemicals, effects of food additives, types of food additives.*

**What are food additives?** Food additives are substances added to food to maintain or improve its safety, freshness, taste, texture, or appearance. Some food additives have been in use for centuries for preservation – such as salt (in meats such as bacon or dried fish), sugar (in marmalade), or sulfur dioxide (in wine).

Many different food additives have been developed over time to meet the needs of food production, as making food on a large scale is very different from making them on a small scale at home. Additives are needed to ensure processed food remains safe and in good condition throughout its journey from factories or industrial kitchens, during transportation to warehouses and shops, and finally to consumers [1].

The use of food additives is only justified when their use has a technological need, does not mislead consumers, and serves a well-defined technological function, such as to preserve the nutritional quality of the food or enhance the stability of the food.

Food additives can be derived from plants, animals, or minerals or they can be synthetic. They are added intentionally to food to perform certain technological purposes which consumers often take for granted. There are several thousand food additives used, all of which are designed to do a specific job in making food safer or more appealing. WHO, together with FAO, groups food additives into 3 broad categories based on their function. There are flavoring agents, enzyme preparations and other additives.

## **Types of food additives**

The different types of food additive and their uses include:

- Anti-caking agents – stop ingredients from becoming lumpy.
- Antioxidants – prevent foods from oxidizing, or going rancid.
- Artificial sweeteners – increase the sweetness.
- Emulsifiers – stop fats from clotting together.
- Food acids – maintain the right acid level.
- Colors – enhance or add color.
- Humectants – keep foods moist.
- Flavors – add flavor.
- Flavor enhancers – increase the power of a flavor.
- Foaming agents – maintain uniform aeration of gases in foods.
- Mineral salts – enhance texture and flavor.
- Preservatives – stop microbes from multiplying and spoiling the food.
- Thickeners and vegetable gums – enhance texture and consistency.
- Stabilizers and firming agents – maintain even food dispersion.
- Flour treatment – improves baking quality.
- Glazing agent – improves appearance and can protect food.
- Gelling agents – alter the texture of foods through gel formation.
- Propellants – help propel food from a container.
- Raising agents – increase the volume of food through the use of gases.
- Bulking agents – increase the volume of food without major changes to its available energy [2].

## **Effects of food additives**

Some people are sensitive to particular food additives and may have reactions like hives or diarrhea. This doesn't mean that all foods containing additives need to be automatically treated with suspicion. All foods are made up of chemicals and food additives are not always 'less safe' than naturally occurring chemicals.

Many of the food additives used by the food industry also occur naturally within foods that people eat every day. For example, MSG is found naturally in parmesan cheese, sardines and tomato in significantly greater quantities than the MSG present as a food additive. People with food allergies and intolerances are also often sensitive to chemicals found naturally in certain foods, such as nuts or shellfish [1].

Many people view food additives as a major food threat. However, in terms of health risk, food additives would come in at the end of the line, after food-borne microorganisms (like

salmonella), inappropriate hygiene and eating habits, environmental contaminants and naturally occurring toxins.

### **Evaluating the health risk of food additives**

WHO, in cooperation with the Food and Agriculture Organization of the United Nations (FAO), is responsible for assessing the risks to human health from food additives? Risk assessment of food additives are conducted by an independent, international expert scientific group – the Joint FAO/WHO Expert Committee on Food Additives (JECFA) [3].

Only food additives that have undergone a JECFA safety assessment, and are found not to present an appreciable health risk to consumers, can be used. This applies whether food additives come from a natural source or they are synthetic. National authorities either based on the JECFA assessment or a national assessment can then authorize the use of food additives at specified levels for specific foods.

JECFA evaluations are based on scientific reviews of all available biochemical, toxicological, and other relevant data on a given additive – mandatory tests in animals, research studies and observations in humans are considered. The toxicological tests required by JECFA include acute, short-term, and long-term studies that determine how the food additive is absorbed, distributed, and excreted, and possible harmful effects of the additive or its by-products at certain exposure levels.

The starting point for determining whether a food additive can be used without having harmful effects is to establish the acceptable daily intake (ADI). The ADI is an estimate of the amount of an additive in food or drinking water that can be safely consumed daily over a lifetime without adverse health effects [3].

### **Why are chemicals added to our food?**

Originally, foods were grown and eaten directly from a relatively unpolluted Earth. Wild foods were sought and gathered. Cleaner oceans, lakes and rivers fed us nutritious fish. Animals in the wild provided protein foods to hunters and their tribes. As the human population multiplied, the world expanded, farming progressed, trade specialties developed, and town markets shared a variety of goods among a diversity of people. Techniques for food preparation and preservation, such as pickling, salting, and smoking, were developed to deal with the new problems of storage, waste, and food-borne illnesses. With advanced technology, our modern food industry's reliance on processing and additives continues to increase. Is this evolution, or are we sacrificing our health for the sake of technological "advances"?

For decades now, the food industry has continually created new chemicals to manipulate, preserve, and transform our food. With the use of chemicals, scientists are able to mimic natural flavors, color foods to make them look more "natural" or "fresh," preserve foods for longer and

longer periods of time, and create altered versions of breads, crackers, fruits, vegetables, meats, dairy products and many more commonly used foods. Now there are even “foods” that are made entirely from chemicals. Coffee creamers, sugar substitutes, and candies consist almost completely of artificial ingredients. Such manipulation of our food can have a profound effect on our body’s unique biochemical balance [2].

But there is a method to the food industry’s madness. They generally provide five main reasons for why chemicals must be added to our foods:

- To improve shelf life or storage time.
- To make food convenient and easy to prepare.
- To increase the nutritional value.
- To improve the flavor of foods.
- To enhance the attractiveness of food products and improve consumer acceptance.

#### **Література:**

1. Food additives, 2012. URL: **Ошибка! Недопустимый объект гиперссылки.**\_(дата звернення: 20.02.2021).
2. Dr. Elson M. Haas. Food Additives and Human Health [Електронний ресурс] / Dr. Elson M. Haas. URL: <https://www.healthychild.com/food-additives-and-human-health/>\_(дата звернення: 20.02.2021).
3. World Health Organization. Food additives / World Health Organization. URL: <https://www.who.int/news-room/fact-sheets/detail/food-additives>\_(дата звернення: 20.02.2021).

УДК 336:631.1(477)

### **THE BUDGETARY FINANCING IS IN THE AGRARIAN SECTOR OF ECONOMY OF UKRAINE**

#### **(БЮДЖЕТНЕ ФІНАНСУВАННЯ В АГРАРНОМУ СЕКТОРІ ЕКОНОМІКИ УКРАЇНИ)**

*Недбайло І. І. – здобувач вищої освіти групи Б2/2*

*Науковий керівник - Глумакова О.І., викладач кафедри іноземних мов МНАУ*

*У статті подано роль аграрного сектору в економіці країни. Оскільки майже все виробництво країни залежить від аграрних підприємств, то економіка нашої країни мала б бути добре розвиненою. Але існують проблеми, які перешкоджають цьому і потрібно їх вирішити.*