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Merits and Demerits of Food Additives

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Abstract Food additive is a double-edged sword. It has merits and demerits. Food additives have such merits as improving sensory properties of foods, preventing deterioration and extending the shelf life, increasing varieties of foods, enhancing convenience of foods, facilitating food processing, and satisfying other demands. However, excessive and illegal use of food additives will exert adverse influence on food security. Therefore, it is required to take proper measures to bring merits of food additives into full play, and get rid of their demerits.

Key words Food additives, Merits and demerits, Legal application, Scientific Application

1 Introduction

With the popularization of science, people know food additives more or less. From any bottle of drink or a bag of snacks at hand, we can find "food additives". Some also indicate specific additives, such as sodium citrate, pectin, D-sodium erythorbate, soybean phospholipids, and sodium hydrogen carbonate, etc^[1].

According to provisions of United Nations Food and Agriculture Organization (FAO) and World Health Organization (WHO), food additives are non-nutritive substances added to food to preserve flavor or enhance its taste and appearance. In Article 99 of *Food Safety Law of the People's Republic of China*, food additive means any synthetic or natural substance used to improve the quality, color, fragrance, flavor of food, and used to add to the food or put together with the food for corrosion proof, keeping fresh or processing technology requirements^[2-3].

From the above definition, we can know that food additives can make foods more attractive, delicious, have better taste and flavor, and easier for preservation. Many merits make food additives become inevitable result of historical and sci-tech development^[4-5]. However, the problem of food security is more and more prominent, some people realize that food additives not only have merits but also have demerits. In order to properly deal with merits and demerits of food additives, we will make brief introduction to merits and demerits of food additives, and study how to get rid of their demerits.

2 Merits of food additives

At present, food additives used in China have 19 categories, including antioxidant, stabilizer, food coloring, preservative, coagulator, flavor enhancer, and sweetener. Generally, all foods on the market contain food additives more or less. Some food advertisements declaring "no food additive" with the only purpose of attracting consumers, because consumers often take food additives as harmful chemical additives. For such problem, we should clearly realize that scientific and proper use of food additives does not harm our body, and they are greatly different from harmful chemical additives. Most food additives commonly used are very

safe, and they have outstanding merits in color, flavor, taste, and preservation.

2.1 Improving sensory properties of foods Nowadays, people's living standard is gradually improving. People no longer eat for hungry only, but start to care about color, taste, and flavor of foods. The popular food junkies in recent 10 years are forerunners. They judge the food according to sensory properties, such as color, flavor, taste, and appearance. From this, it can be known that sensory properties of foods are of great importance to foods.

Application of colorant, color fixative, and bleaching agent can change appearance color of foods and make foods more attractive; use of flavoring can make foods more appealing in smell and taste; use of emulsifier and thickener can beautify appearance of foods and make foods more pleasing. With the help of these food additives, sensory properties of foods can be improved greatly.

2.2 Preventing deterioration and extending the shelf life

From production, sales, consumer purchase, to eating of foods, it is a long process. To prevent rotting in this entire process, use of food additives is a feasible method. Firstly, preservative agent can prevent food rotting resulted from microorganism, extending shelf life of foods, and prevent food poisoning due to pollution of microorganism. Secondly, antioxidant can defer and even prevent oxidation and deterioration, make foods more stable and preservable, and prevent formation of harmful oil and fat autoxidizable substance. Thirdly, food additives can prevent enzymatic browning and non-enzymatic browning of some foods, especially fruits and vegetables.

2.3 Increasing varieties of foods and enhancing convenience of foods

Now, we can buy various foods in supermarket and market. Even the same food also has many types. Besides, convenient foods, such as instant foods, instant bean vermicelli, and instant rice, gradually become rich and rich. Truly, packaging and other processing methods increase varieties and convenience of foods. In addition, the application of coloring, flavoring and seasoning and other food additives in the process of food production also enhances convenience of foods. This is particularly reflected in instant foods that provide extreme convenience for us.

2.4 Favorable for food processing Application of antifoaming, filter aid, stabilizer, coagulator and other food additives in food processing is favorable for food processing. For example, Sodium Carboxymethyl Cellulose (CMC, a stabilizer) can form sta-

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