Research Recommendations for Food Safety Testing Standard Sample System

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Abstract: The research on the standard sample system for food safety testing is mainly to solve the problems of forward-looking, systematic and scientific in the development of food safety testing standard sample system. This research work combines the necessity of research and the analysis of the current research situation, classifies and constructs the standard samples in the food safety testing standard sample system, establishes the food safety testing standard sample system, and compiles the corresponding system table and system management. Besides we also give some suggestions on how to promote the improvement and improvement of the system, such as factors and technical requirements.

1. Introduction
In recent years, food safety issues have remained a hot topic that has attracted wide attention from all walks of life. In the new era of people's living standards, people are paying more attention to food safety and physical health issues. Governments have also joined the food safety research work queue, investing a lot of manpower, material resources and financial resources to study food safety. And the research of detection technology has placed an important position in various research work. This is because food safety is not only related to people's physical health and life safety, but also related to the social stability and economic development of a country. The reason why governments have increased their attention to food safety issues and the study of food safety testing techniques. It is to ensure the safety of food and to make people eat safe and secure food. Therefore, it is necessary to conduct research on the food safety testing standard sample system.

2. Significance and Value of Research on Food Safety Testing Standard Sample System
Standard sample refers to an organic component in the entire standardization work. Standardized samples are needed to quantitatively or qualitatively describe the standard content and requirements of the substance to be tested. It is used to analyze the quality assessment and control of the substance to be tested, and to calibrate the analysis. Instrumentation, assessment and analysis, analysis of data comparison and product quality evaluation. It is characterized by uniformity, stability, and the advantages of intuitive image and high precision. In recent years, due to the development of technology industries such as molecular biology and instrumental analysis, standard samples have appeared in the field of food safety testing, but the scope is also limited to the monitoring of food additives and residues, for genetically modified products, biotech crop products, food microorganisms. Standard samples are still in the preliminary development stage, and standard sample studies in the field of phytosanitary and animal quarantine have not yet entered formal research. In order to meet the needs of international trade and the resolution of domestic food safety issues, it is necessary to strengthen the study of standard samples.


3. Research Status and Research Scope of Food Safety Testing Standard Samples

3.1. Research Status of Food Safety Testing Standard Samples
The research work on food safety testing standards is mainly for the study of special standard samples for the analysis of pesticide residues. This is because in the 1980s and 1990s, in order to increase agricultural production and income, the use of pesticides began to be used, resulting in a large number of toxic substances. Substances entering the soil, water bodies and crops not only pollute the food, but also cause environmental pollution. These pollutants remain in the soil or water body for a long time, affecting the subsequent plant growth environment, and also cause extreme health. Big damage. In order to protect the environment, ensure that people eat safe agricultural products, and increase the detection and analysis of toxic pesticide residues in agricultural products, there have been food safety testing standards for pesticide residues in crops, so that pesticide pollution has been controlled. It also makes pesticide pollution control a top priority in food safety testing. With the analysis of pesticide residues, the demand for special standard samples for the analysis of pesticide residues has increased, but at the outset these samples are dependent on exports, so the cost is extremely high and the operation is not convenient. Therefore, it is an inevitable trend to strengthen the research on standard samples. In these years, not only standard samples of pesticide residues have been developed, but also standard samples for food additives, genetically modified products and animal and plant quarantine standards have emerged to meet the satisfaction of agricultural ecological environment and biological samples needs. The research on the standard sample has also promoted the research work of the food safety test standard sample system in China, and the research work on the standard sample in the field of food safety testing has made certain progress.

3.2. Food Safety Testing Standard Sample Research Scope
Food safety refers to the safety of foods and raw materials that people eat in their daily lives. These foods do not cause any harm to human health under normal and reasonable eating methods. Food safety testing includes animal and plant product safety testing, food microbial testing, food physicochemical testing and cosmetic testing in the fields of agroforestry, animal husbandry and fisheries. The majors and disciplines involved include agronomy, agroecology, animal husbandry and veterinary medicine, food safety engineering, microbiology, crop breeding, organic chemistry, inorganic chemistry, agrochemistry, physiology, zoology and botany. Food safety testing involves multiple industries and multiple disciplines. These standard samples of different industries and disciplines related to food safety testing are common in some respects, such as phytosanitary standards including weeds, pests, viruses, bacterial fungi, and Plant genetically modified ingredients, etc., and the standard samples for animal quarantine also contain viruses and bacteria. Although these standard samples are not identical in use and content, they are identical in technical requirements and characteristics, so the standards for food safety testing are samples which can also be interdisciplinary and professional, domain and other boundaries, and then can be classified and divided according to the needs of specific quarantine work. Therefore, the main research contents of the standard sample system for food safety testing can also be used in the fields of phytosanitary, animal quarantine, microbial detection and physical and chemical detection.

4. Construction of Food Safety Testing Standard Sample System Framework

4.1. Food Safety Testing Standard Sample Classification and Grading
According to international standards, the principles of scientific, systematic, forward-looking and practical should be followed when classifying food safety testing standards. First of all, we must fully follow the laws of science, combine the characteristics of standard samples in different fields to systematically divide the system, and form a scientific and standardized standard sample system. Secondly, to classify the standard samples, it is necessary to fully study the current standard samples of various disciplines in the economic, scientific, technical and management needs, and to list the
standard samples in detail according to the specific application and actual needs, in order to make a scientific classification and form a systematic standard sample system. Once again, there must be sufficient room for development, and the standard samples should be appropriately expanded in conjunction with the actual needs of scientific development, so that the standard sample system has unlimited development space. In addition, the user's needs should be fully considered, and a scientific retrieval system should be established in combination with standard sample requirements and daily use to facilitate quick retrieval of relevant data and standard samples. According to these standards and classification principles, standard samples in the field of food safety testing can be divided into three categories: the first category is based on the characteristics of the standard sample itself, divided into biological, chemical and physical properties, engineering characteristics and other standard samples. Classes are the division of the standard sample application field; the third category is the description of the analyte and matrix. On the basis of this, combined with the definition of food safety testing standards and the actual needs of laboratory research work, the standard samples are listed and systematically classified. When classifying, the same characteristics should be divided together, and then the common feature forming categories should be refined. Different types of standard samples are further searched for other common characteristics, and the relevant common characteristics are refined to form another level category through repeated iterations and classifications, different levels can be formed.

According to the above induction and analysis, four main levels can be formed: the fourth layer is a standard sample of the personality, and the third layer is a standard sample of the door, which is extracted from the fourth layer. The second layer is the field standard sample, which is extracted from the third layer. The first layer is a characteristic standard sample that is extracted from the second layer. The first layer of the characteristic standard sample is consistent with the second layer of the field standard sample and classification principle. The third layer of the standard sample is based on the above classification principle combined with the analyte description and the matrix description, and is reorganized and returned class. In addition, in order to facilitate management and use, analysis, etc., a fourth layer of individual standard samples has been added, which is an independent standard sample for each category of standard samples.

4.2. Construction of Food Safety Testing Standard Sample System

According to the classification and division of the food safety testing standard samples above, the construction of the standard sample system can be carried out. In the food safety test standard sample, the first layer is a characteristic standard sample, including biological characteristics, chemical characteristics, engineering characteristics, and the like. The second layer is the field standard sample, including the field of phytosanitary, animal quarantine, microbial testing, physical and chemical testing. The third layer is a standard sample of foods, including food classification, food additives, pesticide residues, metal elements, pests, weeds, fungi, bacteria, and the like. The fourth layer is a standard sample of personality, including a standard sample of toxic wheat, a standard sample of tobacco ring spot virus, a standard sample of avian influenza, and a standard sample of Staphylococcus aureus. At present, a food safety testing standard sample system framework has been formed, but it is also necessary to formulate a standard sample system table that is in line with China's national conditions and food safety testing work. The system table should include the development, planning, management and other work of food safety testing standard samples, and promote the food safety testing work smoothly through the uniform standard sample regulations. The standard system framework is to be continuously enriched with the advancement of science and technology.

4.3. Food Safety Testing Standard Sample System Table and Standard Sample Code

The food safety testing standard sample system table contains the hierarchical diagram of the system table, the standard sample code, and the standard sample information. Combined with the hierarchical structure diagram, the structure and framework of the standard samples of different levels can be clearly divided, and the standard samples of different levels can be managed according to the actual
situation. Through the standard sample system table and standard sample code, it is convenient to carry out the food safety test standard sample retrieval and classification management work, and make the standard sample information more standardized and perfect according to the relevant information in the table. Different levels of standard sample categories and individual standard samples constitute a food safety testing standard sample system table, and can be arranged according to a certain level to form a standard sample system table in the field of food safety testing.

Combined with the classification and grading of standard samples, the code for food safety testing standard samples consists of three letters and 13 Arabic numerals. The letters represent the national standard samples. The first two numbers represent the characteristics of the standard samples, the third and fourth. The numbers represent the application areas of the standard samples, while the fifth and sixth numbers represent the categories of the standard samples. The fifth and eighth ninth numbers represent the sequence numbers of the standard samples, and the last four numbers represent the release year number of the standard sample.

5. Implementation and Improvement of the Food Safety Testing Standard Sample System

The food safety testing standard system is a standard sample system developed in a unified manner for food safety testing and unified planning and management. The purpose is to better carry out food safety testing through uniform standard samples. The system includes samples of food safety testing standards that have been and are expected to be developed. The system will also be continuously improved and improved with the advancement of science and technology. At this stage, the framework of China's food safety testing standards system has been formed. The research and development, facility conditions and technical means of food safety testing standards need to be further optimized and improved. A more complete system operation mechanism should be established to ensure food. The safety test standard sample system operates normally and orderly. First, a complete and complete organization that is compatible with the food safety testing standard sample system should be established, and the food safety testing standard samples can be comprehensively planned and managed. Secondly, in order to ensure the orderly development of the system, a set of systematic documents should be established to standardize the normal work of the food safety testing standard sample system, such as further improving the food safety testing standards work guide and working technical requirements, especially to strengthen the food microbial standard samples. The research and improvement of professional technical requirements, the construction documents must meet the requirements of national document standards, and must be uniformly released and implemented. In addition, continuous improvement of the food safety testing standard sample system should be carried out, not only with a sound mechanism, organizational structure and regulatory documents, but also a clear blueprint for future development. Specifically, we should do a unified planning for the construction of the standard system, scientifically and rationally set up the types of sample development, and form a complete long-term food safety testing standard sample system in combination with future development. It is also necessary to arrange various research resources reasonably, do a good job in communication and communication between different departments, and promote the development of research and development. Strengthen the construction of the resource guarantee system for system research and construction, that is, rationally arrange funds, technical equipment, etc., and appropriately increase the input of manpower, material resources and financial resources, strengthen investment in the construction and implementation of key food safety testing standards and sample systems, and build advanced experiments. The room draws on the experience of foreign research, development, planning and management of the food safety testing standard sample system, and explores a standard sample system that conforms to international standards and is consistent with the actual work needs of China's food safety testing. Finally, through the construction of the feedback mechanism, we actively listen to the recommendations of relevant scientific research personnel and institutions to promote the continuous improvement and development of the food safety testing standard sample system.
6. Conclusion
In summary, this paper studies the construction of the standard sample system in the field of food safety testing, builds a system framework based on the classification of standard samples, and establishes a food safety testing standard sample system. In the future, in order to meet the needs of actual food safety testing, it is also to promote the integration with the international standard sample system. It should also strengthen the research and development of normative documents and professional technical requirements, and further explore the improvement and continuous improvement measures of the standard sample system. The food safety testing standard sample system is guaranteed to operate efficiently and stably.

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