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Review Article

REGULATORY COMPLIANCE AND STANDARD LABORATORY TESTS CAN POTENTIALLY IMPROVE THE PUBLIC HEALTH AND FOOD SAFETY

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Introduction

Identification and handling of the food spoilage, food illness and food borne pathogens is a potential risk. That is continuously challenging the food experts, businesses owners and authorities. Subsequently, the manufacturing, supplying and distribution of finished food products become a crucial task and need constant check at every step.

Thus, the standard laboratory testing may potentially assure the safety and efficacy of semi-manufactured foods, edible ingredients, and finished products. Particularly, it helps to equip the industry with most current methods and high-level IT developed cutting edge technology. That simultaneously protects the manufacturer and consumers by complying with food safety standards. [2] Hence, the food and health expert are constantly working to review and update the blueprints of food microbiology testing. That is important to meet the requirement of the indigenous food and health standards. Whereas, the nutrition and composition analysis also offer the retailers, importers and manufacturers to understand and tackle the raised concerns. That may include the testing of nutrients, vitamins and other constituents of all range of food product destined for human consumption i.e. additives, excipients, preservatives, color, flavor etc.

Thus, our local government official always encourages the local Canadian businesses to adopt the current art of technology, conduct accurate and timely examination of food. The food and nutrition tests should be performed under ISO/IEC 17025 accredited institutions under accredited and rigorous quality management system.

International networking

The international networking of experts is another factor that helps to improve the test procedures, scientific laboratory protocols and food testing programs. [8] The Canadian food and health experts encourage the global and/or local networking. That keeps them update about the current problems, trends, risk and information. So, they can understand and handle the national and international challenges to improve their protocols, technology and outdated equipment. Such entrusted and autonomous collaboration may confer the health and safety of local consumers. That also minimizes the risk of non-compliance, losing reputation, health threats, and possible lawsuits.

Heterotrophic phosphorylation to produce biomolecules

The heterotrophic micro-organisms use the organic material produced by other living organisms. They have ability to produce the biomolecules and structural components by making ATP through phosphorylation competency process. So, the laboratory testing should

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cover a wide range of investigation. The identification of these pathogen and utilitarian nourishment are fundamental components of food microbiology. Therefore, we may need to incorporate the testing of contaminant, sustenance and composition. That should also be reviewed, certified and accredited by specialists. Additionally, the adapted testing of food product to determine its fitness is major prerequisite to certify the realness. The specialized arrangements, administrative reviews and appropriate audits help to assure the advanced quality of food and nutrition.

Food Safety Modernization Act

The food borne diseases are potential threat for the people in United State. That makes approximately 48 million people sick, 128,000 hospitalizations along with 3,000 deaths each year. The information provided by the Centers for Disease Control and Prevention significantly alert public health professionals and posed considerable challenge. So, the FDA worked to shift the focus from responding to these diseased to their prevention by transforming the national food safety system. [7] Congress enacted the Food Safety Modernization Act (FSMA) to cope with the spectacular changes in food industry all over the world. FSMA may help to control the consequences of the foodborne illness. Moreover, we may successfully handle the public health problem and economic threat of the food system. FDA has finalized seven major rules to enforce FSMA. The rules elaborate the necessary actions that must be taken to prevent the contamination.

Thus, FSMA has provided more comprehensive elaboration to execute the activities against each inconsistency with respect to violation in manufacturing and processing of the food. [1] That played key role to rationalize the methods used to develop, collect and handled the food. They are persistently embracing and incorporating new rules, plans and guidelines to improve and maintain the quality of food and health.

Professional bodies of food and nutrition

There are multiple professional organizations working to certify and acknowledge the quality of food products. The Global Food Safety Initiative (GFSI) established by the international trade association, the Consumer Goods Forum under Belgian law in May 2000. The GFSI is working to maintain a scheme to benchmark food safety standards.

The British Retail Consortium (BRC) was established in 1992 in UK by food retail. BRC has published the standards for Good Manufacturing Practices (GMP) and On-Pack recycling standards for the food industries.

Additionally, the International Featured Standard (IFS) is a GFSI recognized standard for certifying the safety and quality of food products and processes. Whereas, the Secure Quality Nourishment (SQF) is a food security administration certification conspire. That was established to handle the challenges posed by food industry. The recommendations of the food security administration are examined and certified by a 3rd party. That guarantees the customer to believe the quality of food and drinks. The Food Safety System Certification (FSSC 22000) gives a system for viable supervision of food organizations. FSSC 22000 is recognized by the GFSI and is based on existing ISO Benchmarks.

Euro-Retail Produce Working Group (EUREP) Good Agricultural Practices (GAP), collectively abbreviated as EUREPGAP was established in 1997. That was then became Global Good Agriculture Practice (GLOBALG.A.P.) in September 2007. Thus, the British

retailers work in collaboration with supermarkets to know the requirements of consumers regarding health, safety, environment by using this platform. Thus, they develop an independent certification system for Good Agricultural Practice (G.A.P.). They facilitated to the manufacturers to comply with regulations, rationalize water usage and develop more sustainable methods. So, GLOBALG.A.P. is the leading farm assurance program that collect the expectations of consumers and receive the demands of regulatory authorities to establish the standard Good Agricultural Practice for the rapidly expanding member countries (total ≥ 135).

The Food and Agriculture Organization (FAO) is another dedicated agency of the United Nations. That is working hard in collaboration of the leading international groups to defeat hunger. They have deployed their services, programs and schemes in developing and developed part of the world. FAO is a nondiscriminatory organization, that particular remained unbiased when all nations meet and negotiate to design and debate the policy, programs and services. Moreover, the FAO is a good source of current knowledge and updated information about food, agriculture, health, safety and environment. [6] They help the developing countries in transition, modernization and improvement of their technologies. They work for all to make advancement in agriculture, forestry and fisheries, good nutrition and food security. In August 2018, FAO was having 197 member states, including the European Union, Niue (island nation in the South Pacific Ocean), The Cook Islands (nation in the South Pacific, links to New Zealand), the Faroe Islands (self-governing archipelago, part of the Kingdom of Denmark) and Tokelau (a remote group of atolls in the South Pacific Ocean, territories are divided between Hawaii and New Zealand).

Food Contaminant Testing

Examination of the food contamination can potentially help to assure the food quality. We can also maximize the compliance with regulatory standards of health, safety and environmental. However, the testing of raw material, semi manufacturing and final food products can reduce the possibility of non-compliance. Moreover, we should simplify the current complications of local, national and worldwide regulations. That will help to satisfy the regulatory bodies and obtain the permissible quantities of restricted food ingredients. Additionally, the appropriate identification of food borne diseases and detections of associated chemicals, organisms and/ or physical hazard can help to minimize the food contamination. The examination of food contamination covers a wide range of ingredients including Genetically modified organisms (GMO), Polychlorinated biphenyls (PCBs), dioxins, allergens, mycotoxins, radioactivity contamination, pesticide and/ or veterinary drug residues.

Food Safety and Quality

The rigorous food testing may guarantee the quality, security, and supportability of the food products. [4] That may also help to achieve the confidence of customers and reduce the potential risks. Moreover, the appropriate inspection, certification, specialized review, training the staff and risk assessment improve the safety and productivity for the retail outlets. [5] Whereas, poor administration, dishonor of the commitments, lack of confidence, non-compliance with complex legislations, inappropriate shipping, dispersion of food nourishment fixings, and nonguaranteed quality and security of supply chains are key factor to damage any food business. So, the routine checks of operations, mystery shopping and continuous learning of staff and workers can potentially assure the compliance of health and

safety significantly at desired benchmarks.

Modern and Innovative Food Technologies

The modern innovations a technology is potentially helping the food industry to develop, formulate and produce the food items. The most current and sophisticated techniques has made it possible to use the manpower, resources and equipment more effective. That also empowers to select distinctive highlights to convert compliance data into user friendly significant information. Moreover, the finding, analysis and screening of information also help to make some difference in businesses. You may also able to receive the real-time information to control the hazard, identify the problems and assure the compliance.

Additionally, a single test can distinguish the all species of food by utilizing DNA sequencing. That is also an effective tool for food investigation and assessment. We can recognize and handle the pathogens, allergens and potential contaminants to assure the safety and quality of food items

Conclusion

The standard laboratory testing help to identify and handle the food borne pathogens. The food spoilage is also a potential challenge for the scientists and health professionals. So, the food manufacturing and processing become more crucial task and need constant surveillance. Thus, a continuously review needed to assure the food safety and comply with the health standards. Moreover, the global and/or local networking also helps to update scientific information, current problems, trends and risks. In addition, the government official should encourage the local businesses to adopt the current food art and processing technology. That should be performed under ISO/IEC 17025 accredited institutions and rigorous quality management system.

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