



Food Testing: Critical for Ensuring Food Safety

Food safety is one of the major determinants of a sound and cohesive healthcare system in a country. As food chains are becoming longer, complex and globalized, contamination of food leading to food borne diseases is a growing concern. Unsafe food not only poses a threat to the health of the public but also affects the socio-economic development of a country. This silent pandemic is responsible for hundreds of thousands of deaths every year and thus needs more attention.

Shri Arun Singhal, CEO, FSSAI.

Burden of food-borne illnesses is comparable to malaria, HIV/AIDS and tuberculosis. It is estimated that every year 100 million cases of food-borne diseases (FBD) are reported in India and it costs \$15 billion annually to the country. By 2030, food borne diseases are expected to rise to 150-177 million annually*. Several recent researches have unveiled a strong interconnection between unsafe food and adverse health & nutrition outcomes. Infection by food-borne pathogens results in poor absorption of

nutrients from food, particularly of vitamins and minerals, which in turn impacts the overall nutritional status of an individual.

Why is Food Testing Necessary?

To ensure availability of safe and hygienic food to consumers, effective food testing measures are vital at every necessary step throughout the food value chain. The objective of food testing is to ensure that the food is free from the below mentioned hazards:



- **Biological hazards:** Derived from microbial hazards such as salmonella and E. coli bacteria.
- **Chemical hazards:** Contamination with chemicals used in agriculture and/or production processes such as antibiotics, pesticides, as well as food additives such as preservatives, and including chemicals that are used in the production/processing and cleaning agents for equipment and machinery.
- **Physical hazards:** Any extraneous objects in food that can cause illness or injury to the consumer such as glass, pieces of metal, plastic or wood, etc.

Measures to Improve Food Testing

Food Safety and Standards Authority of India (FSSAI), an apex food regulator, has been continuously working towards improving the food testing ecosystem in the country. Two well established and fully equipped laboratories are supported by FSSAI in Delhi-NCR and Kolkata. They have a significant number of State Food Laboratories as well as NABL accredited private labs with a network of almost 190 notified food testing laboratories.

For improving the food testing infrastructure in

the country, FSSAI is implementing a Central Sector Scheme for “Strengthening of the Food Testing Ecosystem” in the Country with a total outlay of Rs. 481.95 Cr that includes provisioning of modern testing equipment in State Food Laboratories across the country as well as allocating Mobile Food Testing Labs and other related measures. To ensure quality and consistency of results from participating food laboratories, FSSAI has recognised food labs as per ISO 17025/2017 only through NABL under integrated assessment system. These labs are being monitored by NABL through audits, verification and other periodical desktop surveillance audit, reassessment and renewal of accreditation.

Schemes for Rapid Food Testing

- ❖ FSSAI has introduced a scheme for approving rapid analytical food testing (RAFT) devices/kits/methods. Several recent rapid and automated kits/equipment/ methods are commercially available globally to bridge the gap for rapid detection of food borne contaminants etc. and instantaneous, on-line monitoring to ensure the safety of food products.
- ❖ To further reduce the screening time of food products by Food Safety Officers (FSO) at the field level and accelerate surveillance

activities, FSSAI has come up with a **policy for fast track approval of rapid food testing kits/devices**. The ultimate goal for these rapid testing devices and equipments is to provide results within a few hours, if not in “real time”. RAFT kits are most advanced, easy to use, portable hand-held devices. The tests can be performed anywhere by anyone without any specific training requirements.



- ❖ Recently, an indigenous RAFT kit - **Precision Iodine Value Analyzer (PIVA)** has been developed by CSIR along with Central Scientific Instruments Organization (CSIO). This home grown kit can determine the Iodine Value (degree of unsaturation) measurement in edible oils and fats in a faster, better, and cheaper way.
- ❖ FSSAI has approved 65 rapid food testing kits/devices so far to ensure faster, better and cheaper real-time testing of food even at the field level, thus assuring safe and good quality of food while raising the bar for food safety in the country.
- ❖ To facilitate on the spot testing of adulteration in common food items, FSSAI has provided 153 mobile food testing laboratories called Food Safety on Wheels (FSWs) to the States/UTs to add to the food testing infrastructure in the country. Any consumer can visit these FSWs and test the quality of food products. These units help the functionaries in the States to enhance their outreach and conduct surveillance activities even in far-flung areas. Most of these FSWs are being utilised by States effectively and efficiently.
- ❖ For awareness among consumers about com-

mon food adulterants, FSSAI has published **DART (Detecting Adulterants with Rapid Testing)** book that enables a consumer to test common adulterants in food products at home. DART can be used as a ready guide for households, which can induce awareness among consumers about food safety.

- ❖ A mandatory training programme covering Good Food Laboratory Practices (GFLP) is meant for all the personnel of laboratories under the purview of FSSAI. This five-day training is conducted at the premises of the state-of-the-art laboratory at Ghaziabad and/or notified laboratories having testing facilities for safety parameters (microbiological, pesticide and heavy metals) in Chemical and biological fields as per the NABL Scope.

Food testing is an important part of the food safety ecosystem. It helps in determining any risk that is associated with the food products and builds confidence in consumers that the food available for consumption is safe and hygienic. FSSAI aims to keep the confidence of consumers intact and continues to build a more robust food safety ecosystem in the country to ensure effective food safety as well as credible food testing measures at every level.