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COIMBATORE-641 035, TAMIL NADU

19FTT302 & FOOD SAFETY AND QUALITY REGULATIONS

UNIT III QUALITY CONTROL
APEDA AND MPEDA

APEDA (Agricultural and Processed Food Products Export Development Authority) and MPEDA (Marine Products Export Development Authority) are key organizations in India that focus on promoting the export of agricultural and marine products, respectively. Both agencies play significant roles in ensuring food safety, quality, and technological advancement in their respective sectors.

APEDA (Agricultural and Processed Food Products Export Development Authority)

Overview: APEDA was established in 1986 under the Ministry of Commerce and Industry. It aims to promote the export of agricultural and processed food products from India.

Key Functions:

- **Export Promotion**: Supports exporters of processed foods, fruits, vegetables, and other agricultural products through marketing assistance and financial incentives.
- **Quality Standards**: Sets standards for quality and safety in food products, helping exporters comply with international regulations.
- **Technology Development**: Encourages research and development in food processing and packaging technologies to enhance product quality.
- **Training and Capacity Building**: Provides training programs for farmers and exporters to improve production techniques and quality management.

Relevant Areas in Food Technology:

- **Food Processing**: APEDA promotes advancements in food processing technologies to enhance shelf life and quality.
- **Packaged Foods**: Supports initiatives in packaging innovation to meet global standards.
- **Organic Certification**: Facilitates organic certification for farmers and producers, enhancing market access.

MPEDA (Marine Products Export Development Authority)

Overview: MPEDA was established in 1972 to promote the export of marine products from India. It operates under the Ministry of Commerce and Industry and focuses on sustainable fishing practices.

Key Functions:

- **Export Development**: Promotes the export of seafood and marine products through various initiatives.
- **Quality Assurance**: Implements quality control measures and standards to ensure that marine products meet international food safety requirements.
- **Research and Development**: Supports research in aquaculture, processing techniques, and value addition of marine products.
- **Sustainability Initiatives**: Promotes sustainable fishing practices to ensure the long-term viability of marine resources.

Relevant Areas in Food Technology:

- **Seafood Processing**: Encourages the adoption of advanced processing technologies to maintain freshness and quality.
- **Cold Chain Management**: Focuses on developing efficient cold chain logistics to ensure that seafood reaches consumers in optimal condition.
- **Certification and Compliance**: Works on ensuring compliance with international food safety standards, including HACCP (Hazard Analysis Critical Control Point).

Impact on Food Technology

1. **Quality and Safety**: Both APEDA and MPEDA set benchmarks for quality and safety, ensuring that Indian food products can compete globally.
2. **Technological Advancement**: They promote innovations in processing, packaging, and preservation, which enhance product appeal and longevity.
3. **Market Expansion**: By ensuring compliance with international standards, these agencies help Indian products gain access to foreign markets, boosting exports.
4. **Sustainability**: They advocate for sustainable practices in agriculture and fisheries, contributing to long-term food security and environmental health.

Conclusion

APEDA and MPEDA are instrumental in shaping the landscape of food technology in India. Their focus on quality, innovation, and sustainability not only enhances the competitiveness of Indian agricultural and marine products but also contributes to the overall development of the food industry.

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i) Objective methods: You can also measure colour, flavour, texture and nutritive quality with help of instrument. However, sensory method is the best method for judging the quality.

Specifications for cereals

There are at least 330 specifications for cereals and cereal products at national and international level (over 50 countries or regions) of which at least 12 are applicable globally. The criteria assigned to grains are the intrinsic varietal qualities and those which are environment- or process induced.

Intrinsic Qualities

Colour: Cereal grains are pigmented and range through the colour spectrum from very light tan or almost white, to black. Where extractive milling is required, highly-pigmented varieties may give low yields of white flour.

Composition: Composition, e.g. protein, carbohydrate, lipids and their breakdown products, qualitatively influences product acceptability, by affecting texture and taste. Quality changes evolve slowly in stored grain and more rapidly in milled or processed intermediary products.Some grain components, for example husk, are inedible and quantitatively influence product yield and gross nutrients available to the consumer.

Bulk Density: Each type or variety of grain when in optimum health, fully mature, etc. has a characteristicbulk density.

Odour, aroma: Most grain types, when fresh, have a distinctive natural odour or aroma. This is generally accepted as an indicator of good quality, although some people prefer grain which smells 'old' or even fermented.

Size, shape: Rice, as a whole-grain food, is classified by size (length) and shape (length:breadth ratio). Other grains also have its size considered in their specification. In general a small range in size assists with processing and handling.

Induced Qualities

Age: During the post-harvest phase, grain undergoes complex biochemical changes termed 'aging'. Changes to carbohydrate, lipids and protein fractions result in, for example, firming of texture in rice on cooking, and increased gas-retention

capability in wheat flour. For most consumers, the effects of these changes are considered to be desirable. When plotting consumer acceptability of a grain product against its age since harvesting, generally it is considered to be maturing during the upward curve of the graph, and deteriorates only when the curve changes direction downwards.

Broken grains: Grain is marketed normally in whole grain form and is considered to be of inferior quality if broken. Breakage may occur from fissures as a result of excessive drying/weathering conditions in the field or during handling. Breakage reduces quality by reducing acceptability and by increasing susceptibility to infestation during storage. This affects milling yield.

Chalky or immature grain: Empty grains result from sterility and pre-harvest infections and insect attack. Immature grain content is affected by time of harvest. In rice, immature grains are greenish in colour. Thin white (usually opaque) grains are caused by incomplete grain filling and may result from pests or disease. Chalkiness is caused by incompletely filled starchy endosperm which disrupts light transmission, causing opaque regions. In most cereals, chalky areas have lower mechanical strength on crush tests and may break during handling. The broken portion is more easily invaded by certain storage pests.

Foreign matter: Dilution of the prime product by foreign matter reduces the value, and also may affect handling and processing. Foreign matter may be animal origin - vegetable origin - mineral origin.

Infested, infected grain: Grain mass, and therefore yield, is reduced by infestation. Contamination not only has direct food hygiene implications but also indirect ones, as invading micro-organisms may produce toxins under certain conditions which may lead to acute or chronic illness.

Mixed varieties: A mixture is an indication of poor pre- and post-harvest management and supervision, e.g. seed selection, lot segregation and treatment, contamination, etc. Grains differing in size and other characteristics affect processing potential. Whilst preference for a particular variety may be influential nationally or regionally, internationally-traded grain is recognised usually by grain type rather than by variety e.g. yellow or white maize. Exceptions do occur, e.g. basmati rice, (due to its aroma).

Moisture content: Moisture content of grain plays a crucial role in post-harvest processing and is associated with most of the induced characteristics. Water vapour will diffuse throughout a bulk of grain and the moisture content will tend to equalise. 'Hot spots' may occur at a site of increased respiration (caused by sprouting, infestation or microbial activity), and condensation may occur on cold grain or containers