Hygiene and Food Safety

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Introduction

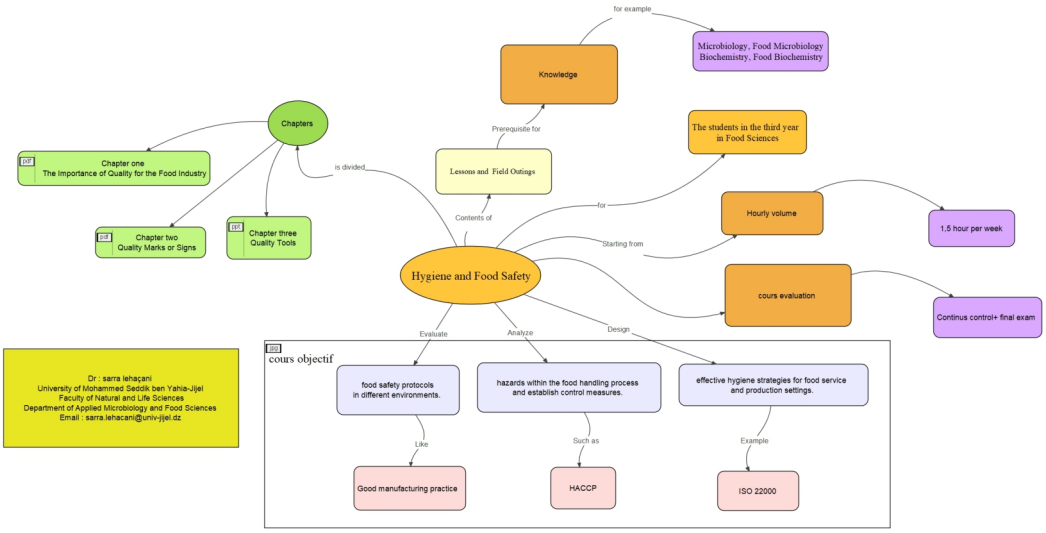
Hygiene and food safety are essential aspects of our daily lives. They are essential to ensure the safety and quality of the food we eat. This is because improper handling or preparation of food can lead to foodborne illnesses and endanger our health. That's why it's important to understand and apply good hygiene and food safety practices. This course, explores the fundamentals of food hygiene and the preventive measures needed to preserve the health of all consumers.

Food hygiene and safety are essential aspects of our daily lives.

Indeed, we are all likely to consume food at various times during the whether at home, at work or in a restaurant. This is why it is essential to ensure that these foods are prepared and handled under sanitary conditions in order to avoid any risk to our health.

Food hygiene encompasses various aspects such as the cleanliness of the premises, the equipment used (kitchen utensils) and manipulators' hands, as well as compliance with the standards of

preparation, preservation and transport of food. Food security, on the other hand, aims to prevent the risk of contamination of food by the different types of hazards in implementing control measures and complying with the regulations in force.



Chapter 5 :Hazard Analysis Critical Control Points (HACCP)

I

1. HACCP

Définition

"Any process that helps eliminate contamination in our food and beverages is a positive sign," Adam Berman

- HACCP (Hazard Analysis and Critical Control Point) is a systematic approach in identifying, evaluating and controlling food safety hazards.
- Food safety hazards are biological, chemical or physical agents that are reasonably likely to cause illness or injury in the absence of their control.
- A HACCP system is a preventive system of hazard control rather than a reactive one.
- HACCP systems are designed to prevent the occurrence of potential food safety problems.
- This is achieved by assessing the inherent hazards attributable to a product or a process, determining the necessary steps that will control the identified hazards, and implementing active managerial control practices to ensure that the hazards are eliminated or minimized.
- Essentially, HACCP is a system that identifies and monitors specific foodborne hazards – biological, chemical, or physical properties – that can adversely affect the safety of the food product.
- This hazard analysis serves as the basis for establishing critical control points (CCPs). CCPs identify those points in the process that must be controlled to ensure the safety of the food.
- Further, critical limits are established that document the appropriate parameters that must be met at each CCP.
- Monitoring and verification steps are included in the system, again, to ensure that potential hazards are controlled.
- The hazard analysis, critical control points, critical limits, and monitoring and verification steps are documented in a HACCP plan.
- Seven principles have been developed which provide guidance on the development of an effective HACCP plan.

2. SEVEN PRINCIPLES OF HACCP

Principle 1 Conduct a hazard analysis

Identify the potential hazard(s) associated with food production at all stages, from primary production, processing, manufacture and distribution until the point of consumption. Assess the likelihood of occurrence of the hazard(s) and identify the measures for their control.

Principle 2 Determine the Critical Control Points (CCPs).

Determine the points, procedures or operational steps that can be controlled to eliminate the hazard(s) or minimize its (their) likelihood of occurrence. A "step" means any stage in food production and/or manufacture including the receipt and/or production of raw materials, harvesting, transport, formulation, processing, storage, etc.

Principle 3 Establish critical limit(s).

Optical limits must be specified and validated if possible for each Critical Control Point. In some cases more than one critical limit will be elaborated at a particular step.

Criteria often used include measurements of temperature, time, moisture level, pH, Aw, available chlorine and sensory parameters such as visual appearance and texture.

Principle 4 Establish monitoring procedures.

Monitoring is the scheduled measurement or observation of a CCP relative to its critical limits. Monitoring should ideally provide this information in time to make adjustments to ensure control of the process to prevent violating the critical limits. Where possible, process adjustments should be made when monitoring results indicate a trend towards loss of control at a CCP. The adjustments should be taken before a deviation occurs. Data derived from monitoring must be evaluated by a designated person with knowledge and authority to carryout corrective actions when indicated. If monitoring is not continuous, then the amount or frequency of monitoring must be sufficient to guarantee the CCP in control.

Principle 5 Establish corrective actions.

Specific corrective actions must be developed for each CCP in the HACCP system in order to deal with deviations when they occur. The actions must ensure that the CCP has been brought under control, Actions taken must also include proper disposition of the affected product. Deviation and product disposition procedures must be documented in the HACCP record keeping.

Principle 6 Establish verification procedures.

Verification and auditing methods, procedures and tests, including random sampling and analysis, can be used to determine if the HACCP system is working correctly. The frequency of verification should be sufficient to confirm that the HACCP system is working effectively. Examples of verification activities include:

- Review of the HACCP system and its records;

- Review of deviations and product dispositions;

- Confirmation that CCPs are kept under control.

Where possible, validation activities should include actions to confirm the efficacy of all elements of the HACCP plan.

Principle 7 Establish record-keeping and documentation procedures.

Efficient and accurate record keeping is essential to the application of an HACCP system. HACCP procedures should be documented. Documentation and record keeping should be appropriate to the nature and size of the operation.

Documentation examples are:

- Hazard analysis;

- CCP determination;

- Critical limit determination.

Record examples are:

- CCP monitoring activities;

- Deviations and associated corrective reactions;

- Modifications to the HACCP system.

Step (CCP)	Hazard	Critical Limits (Parameters)	Control Measure	Monitoring System		Corrective Action	Responsibility (Authority)	Record
				Method	Frequency			
Receipt of fresh apple and sorting	Foreign bodies and mould from rotting fruits. Pesticides residue	Presence of mould infestation in apple lot.	Assessment of lot (accept or reject batch) Supplier assessment. Certificate of conformance from suppliers	Visual inspection Presence of signed certificate from supplier	Each batch intake of ingredients	Appropriate action with supplier (reject lot)	Purchasing Manager	PUX 1
Water Source screening	Presence of excess ions (chlorine) and off flavours. High bacteria count	pH level of 6 to 8 and chloride level of 250mg/lit	Sensory and on-site kit test (for chlorine) Scheduled Microbiological analysis of water samples	Tasting and smelling. Instant test kit results	Daily	Inform water suppliers. Regulate chlorine control system (in-house)	Quality assurance officer	QAW1

3. Benefits of Implementing the HACCP System

Benefits for Consumers

1. Lower risk of food borne illnesses
2. Greater awareness of food safety
3. Greater confidence in food supply
4. Better quality of life through health and socioeconomic benefits

Benefits for Industry

1. Greater consumer confidence on product
2. Minimizes legal and insurance costs
3. Increases market access

4. Lower wastage, fewer no recalls, minimum or no reprocessing, and corrective action
5. A consistent product
6. Enhanced staff commitment to food safety
7. Lower business risk

Benefits for Regulatory Bodies

1. Improved health among the community
2. More efficient food control
3. Lower public health costs
4. Trade promotion
5. Greater confidence of the community in the food supply

4. APPLICATION OF HACCP

While the application of HACCP to all segments and sectors of the food chain is possible, it is assumed that all sectors should be operating according to good manufacturing practices (GMPs) and the Codex General Principles of Food Hygiene. The ability of an industry segment or sector to support or implement the HACCP system depends on the degree of its adherence to these practices.