

while the increase of carbohydrate and protein content continuously decreased, fiber and fat content continuously increased by the percentage of added apple pomace.

Conclusions

Texture analysis is suitable analytic method to compare bakery products and, after several reference data, may be suitable to determine the type of unknown samples. The results of instrumental measures are comparable to sensory analysis and it can result numerical results for the further statistical analysis.

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FOOD SAFETY AND FOOD PHYSICS – ASPECTS IN FOOD PROCESSING AND QUALITY CONTROL

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ABSTRACT

The paper deals with some special questions of aspects of food safety and application of methods of food physics in food processing and in food quality control and assurance, as well (Figure 1). The role of food safety has developed

significantly in the last decades, so today the production and processing of safe and quality food is of primary importance. Modern food production is based on principles of GAP and GMP (including GHP) and different methods and tools for quality assurance (HACCP, ISO-9000, ISO-22000, TQM).

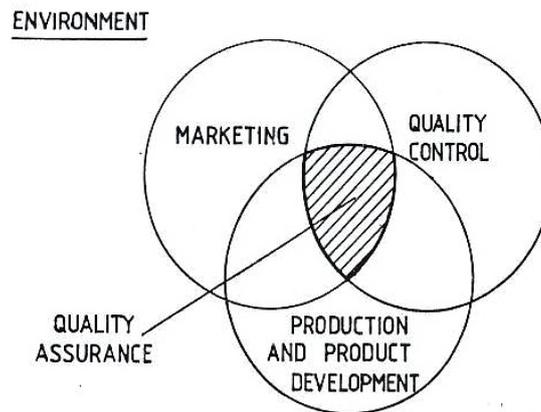


Figure 1

Food processing and in food quality control and assurance.

There are many techniques and methods to produce safe food and to control the quality of foodstuffs. The modern, up-to-date technologies and measurement techniques involve the application of different physical methods – high pressure, pulsing electrical field, non-destructive techniques (e.g. INAA, NMR, NIR-NIT), radiation treatments - as well. Using radiation technologies (not only nuclear techniques) it is possible to fulfil some important expectations of modern food processing, e.g. decrease of microbial contamination, improvement of sensory properties, increase of storability of products.

Factors determining the quality of food products

Basic requirement: safety (no harmful effects)

- Sensory properties, value of pleasure
- Quantity, volume
- Chemical composition
- Packaging, labelling
- Special (microbiological, toxicological, radiometrical) parameters

Rank of Hazards from Eating Food

The Experts	The public
1. Microbial safety	1. Pesticides
2. Over-nutrition	2. New food chemicals
3. Non-microbial safety	3. Chemical additives
a) contaminants	4. Familiar hazards
b) natural toxins	a) Fat & cholesterol
c) agrochemicals	b) Microbial spoilage
d) food additives	c) Junk foods

Food processing and food quality control

Food production is based on principles of GAP, GMP, GLP and GHP (Figure 2).

GAP – Good Agricultural Practice
 GMP – Good Manufacturing Practice
 GLP – Good Laboratory Practice
 GHP – Good Hygiene Practice

Quality control and assurance is based on principles of HACCP (Hazard Analysis Critical Control Points), ISO-9000 standards, TQM (Total Quality Management).

Safe food: from farm to fork in the whole chain

Safe food and quality food is not equal!

Quality food is safe, but safe food can be not quality food (e. g. not good sensory properties)

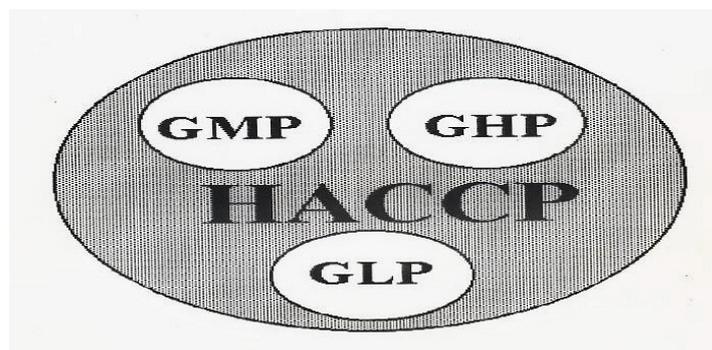


Figure 2

Components of Quality Assurance and connection between HACCP and GMP

3 main topics:

- physical parameters of foodstuffs
- physical methods for investigation of foodstuffs
- physical methods for treatment and processing of foodstuffs

Modern food technologies and food measurements are based on the principles of physics and physical methods:

- dehydration
- freezing
- lyophilization
- high pressure
- ohmic processing
- pulsing electrical fields
- magnetic fields
- nondestructive techniques (e.g. NIR-NIT, NMR, PAS)

Radiation methods and techniques in the food sector

- Ionizing radiation techniques and technologies (gamma-sources, X-ray equipments, electron accelerators)
- Non-ionizing radiation techniques (light-technique, IR, UV, Laser, SYNERGOLUX: UV+ozone, polarized light in radiostimulation)
- Isotope techniques, tracer techniques
- Radio-analytical techniques (e. g. AA)
- Measurement techniques (quantity, level, thickness etc.)
- Radioecology

Expectations in modern food processing

- Decrease the microbial contamination, disinfection
- Increase the storability
- Improve the sensory properties
- Apply environment-friendly and economical technique

Important standards

ISO 9000 (International Standards for Quality Management)

ISO 14000 (International Standards for Environmental Management)

ISO 22000 (International Standards for Food Safety Management)

ISO 9000-2000 (combination of ISO 9000 and TQM)

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THE MANAGEMENT OF RISKS IN THE EDIBLE OILS INDUSTRY

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ABSTRACT

Risk Management System is an important part of the developing and executing of a business plan in the food industry. Effective implementation of Risk Management System promotes best practice concepts at the corporate/strategic level as well as a improving of technological operation. A proactive approach of the Risk Management System should form a core part of the decision-making process at all levels within an productive organization.

The European legislation in the field of industrial risks management identify two types of risk:

- the chronic risk (integrated control and prevention of pollution).
- the accidental risk: fires, explosions, noise, air pollution, water, waste pollution resulting from the radioactivity.