

Techniques and advanced systems of processing of agro-alimentary products (I st year of study, II nd semester)

Credit value (ECTS) 6

Course category

Domain (Imposed)

Course holder:

PhD Lecturer Eng. Marius Mihai CIOBANU

Discipline objectives (course and practical works)

Within the classes and practical works, the discipline, according to the Analytical Program, has a first objective like the cognitive acquisition regarding the characteristic elements of the processing and the objective appreciation of the innate and extrinsic innocuousness and quality regarding meat and meat products. It also aims to acquire the latest scientific developments in the literature on modern processing technologies, knowledge useful for improving and obtaining the necessary expertise for food engineers in the food industry.

Contents (syllabus)

Course (chapters/subchapters)
Introduction to modern processing technologies. Biotechnological applications in food processing of animal origin: - General characterization of enzymes and microorganisms (enzymes, microorganisms, STARTER cultures of microorganisms) - Meat industry applications - Fish industry and aquatic raw materials applications - Dairy industry applications
Modern and non-destructive methods of analysis and authentication (PCR, ELISA, image analysis, biosensors, NIR spectroscopy).
Traceability of food and agri-food products.
Heat treatments - pasteurization, sterilization.
Microwave sterilization.
Membrane separation (microfiltration). Lyophilization, cryoconcentration.
Use of enzymatic preparations. Encapsulation. Extrusion.
High pressure processing. Electrical pulses (PEF).
Ultrasound. Light pulses. Cold plasma.

Practicum
Practical applications in slaughtering technological flows and making meat preparations.
Determinations regarding: Separation through membranes (microfiltration). Lyophilization, cryoconcentration.
Determinations regarding: Using the enzymatic preparations. Encapsulation. Extrusion.
Determinations of: High pressure processing. Electrical pulses (PEF)
Determinations of: Ultrasound. Light pulses. Cold plasma.

References

1. Banu C., Alexe P., Camelia Vizireanu - Procesarea industrială a cărnii. Ed. Tehnică, București, 2003.
2. Bondoc I., Șindrilar E.V - Controlul sanitar veterinar al calității și salubrității alimentelor. Ed. Ion Ionescu de la Brad, Iași , 2002
3. Cuciureanu Rodica - Chimia și igiena mediului și alimentului. Ed. Gr. T. Popa , Iași, 2003
4. Georgescu Gh., Banu C. - Tratat de producerea, procesarea și valorificarea cărnii. Ed. Ceres, 2000.
5. Negrea A. -Tehnologia, calitatea și controlul sanitar veterinar al produselor de origine animală. Ed. Moldogrup, Iași, 2001.
6. Paștea E. - Atlas pracic de anatomie veterinară. Ed. Ceres, București, 1979.
7. Savu C., Mihai Gabriela - Controlul sanitar veterinar al alimentelor. Ed. Ceres, 1997.
8. Banu C. – Biotehnologii în industria alimentară. Ed.Tehnică , București , 2000.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Written evaluation	70%
Periodic evaluation tests	Partial verification tests	30%

Person of contact

PhD Lecturer Eng. Marius Mihai CIOBANU

Faculty of Agriculture - IULS Iași

Mihail Sadoveanu alley, no. 8, Iași, 700490, România

telephone: 0040 232 407 481

E-mail: marius.ciobanu@uaiasi.ro