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SUSTAINABLE PROCESSING OF ANIMAL PRODUCTS IN THE CONTEXT OF THE CIRCULAR ECONOMY

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Abstract: *The paper entitled "Sustainable processing of animal products in the context of the circular economy" aims to analyze how the principles of the circular economy can be integrated into the animal products processing industry, in order to reduce the environmental impact and increase the efficiency of resource use. In the context of increasing pressure on natural resources and the need to reduce greenhouse gas emissions, the adoption of sustainable production and processing models becomes essential. Sustainable processing of animal products, based on the principles of the circular economy, represents a strategic direction for the sustainable development of the food sector, and it is necessary to support it through coherent public policies, investments and adequate professional education.*

• Introduction

In recent decades, the accelerated development of the agri-food industry and the continuous increase in demand for animal products have led to the intensification of production and processing processes, generating significant effects on the environment and the use of natural resources. The meat, milk, fish and other animal products industry is considered one of the most important branches of the agri-food economy, playing an essential role in ensuring food security and meeting the nutritional needs of the population. However, the activities specific to this sector are associated with high water and energy consumption, significant greenhouse gas emissions and the generation of significant amounts of waste and by-products.
Sustainable processing of animal products involves the application of modern and efficient technologies that allow for the reduction of energy consumption, the reduction of pollution and the optimization of the use of raw materials. The implementation of resource management systems and ecological technologies contributes to increasing economic efficiency and reducing production costs.
The adoption of circular economy principles in the processing of animal products is also supported by European policies on sustainable development, reducing carbon emissions and improving resource efficiency.
Sustainable processing of animal products is an essential direction for the development of a modern, competitive and environmentally responsible agri-food system. The integration of circular economy principles in this sector can contribute to reducing the ecological impact, efficiently exploiting resources and ensuring long-term sustainable development.
Modern consumers are showing a growing interest in products obtained through sustainable methods, being concerned about the impact of food production on health and the environment.

• Material and method

To prepare the paper, bibliographic sources in the field of animal product processing, sustainability and circular economy were analyzed, including scientific articles, international reports and studies on the efficiency of resource use in the agri-food industry.

• Results and discussions

The analysis highlights that the implementation of circular economy principles in the processing of animal products significantly contributes to reducing the environmental impact and increasing economic efficiency. The use of modern processing technologies allows for the reduction of energy and water consumption, optimization of technological efficiency and reduction of raw material losses.
The analysis of information on the sustainable processing of animal products highlights that the implementation of circular economy principles significantly contributes to reducing the environmental impact and increasing the economic efficiency of agri-food units.
The application of digital control and traceability systems allows for the rapid identification of critical points and the prevention of technological defects that can lead to economic and food losses.
Compared to conventional processing systems, sustainable models allow for more efficient use of resources, reduction of technological losses and reuse of by-products resulting from production activity.
The implementation of sustainable processing brings multiple benefits from both an economic, ecological and social point of view. Increasing the efficiency of resource use leads to reducing production costs and increasing the competitiveness of agri-food companies. At the same time, reducing pollution and valorizing by-products contributes to environmental protection and the development of a more responsible and resilient food system.
Developing efficient methods for reusing by-products, reducing energy consumption and using smart digital technologies can contribute to transforming the animal products industry into a more competitive and environmentally friendly sector.

• Conclusions

Sustainable processing of animal products is an essential component of the transition to a circular economy and the sustainable development of the agri-food sector. The application of modern technologies and the efficient valorization of by-products contribute to reducing the environmental impact, reducing food waste and the responsible use of natural resources. Sustainable processing of animal products will play an increasingly important role in ensuring food security.