Artificial Meat; Production Methods, Technological And Ethical Constraints, Contribution to Sustainability

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It is predicted that the average annual global meat consumption will double as the world population increases in the next forty years. The global livestock industry has been scrutinized in recent years within the context of environmental, ethical and human health issues. Due to mass production cattle breeding, the livestock sector is among the sectors with the highest greenhouse gas emissions. In addition, many and urgent reasons such as waste management in the meat industry, high amount of water waste and land use, animal welfare, increased risk of zoonotic diseases, the formation of antibiotic-resistant genes due to the use of antibiotics in animal nutrition, and the establishment of a relationship between meat consumption and human health, lead to the search for alternative solutions. To meet the ever-increasing demand for meat using less resources, "artificial meat production" has been introduced as an alternative solution. Artificial meat is defined as meat produced by tissue engineering applications in the laboratory environment. The common feature of production methods is the desire to produce products equivalent to traditional meat. Artificial meat is expected to have high nutritional value through standardized production methods, less prone to microbiological risks and diseases, and contribute to animal welfare and sustainability. The developments in today's technology and the increasing level of awareness in people support the studies of artificial meat technology, which is one of the sustainable innovative technologies. In addition, in order to make artificial meat widely available, it is necessary to overcome technical difficulties and controversial ethical restrictions, to reduce its cost, to increase comprehensive scientific studies on this subject, and to make legal regulations all over the world.

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