**TECHNOLOGY AND INNOVATION IN THE SERVICE OF FOOD. CHALLENGE FOR TODAY, NECESSITY FOR THE FUTURE**

The world’s population is predicted to rise to 9.5 billion by the end of the century, and the urban population is predicted to increase from 3.3 billion in 2007 to 6.4 billion in 2050. In 2050 the agricultural demand will have increased by 100%, due to the population growth and the changing dietary habits. In addition, in 2030 water consumption will increase by 3%, due to increased demand for drinking water, industrial water and increased agricultural water use. Among the most significant challenges for the future are the supply, storage and transport of energy, clean freshwater and adequate food for all mankind, which must be met maintaining food security and sustainability. In parallel, to assure high quantity and quality food for the growing world population, food industry has to satisfy consumers’ needs. Consumers demand safe food products of high nutritional value and biofunctional properties, superior sensory attributes, long shelf life and convenience in use, as well as sustainably produced in an environmentally and energy efficient way. Advancements and innovations in food processing technologies, nanotechnology, artificial intelligence and innovative food formulations are promising solutions towards these challenges. The current presentation describes promising innovative technologies and technological solutions for the development of high quality and healthy food products in a sustainable way. In addition, the application of big data in food science is briefly described since big data have started to lead to new developments in the food area.