

Summer Course in Nanoscience and Nanotechnology

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ABSTRACT

Facing health, ageing and digitalization in the future food system

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The Food System, as a whole, is facing a series of paramount challenges for this century: demographic growth, urbanization, aging, sustainability and climate change. These challenges relate to important issues and questions that need to be solved, for instance: 800 millions of people are hungry in the world nowadays. FAO estimates that every year around the globe 1.3 billion tons of food is lost or wasted, that is a 1/3 of all food produced for human consumption (FAO, 2008). At the same time in the first world obesity, diabetes, hypertension are reaching epidemic consideration, and health organizations have alerted about the impact of diet-related diseases in the public health. Thousands of people still die every year due to preventable foodborne diseases around the world. It is estimated that by 2050 world population will require 100% more foods and the current food production technologies will be not enough to satisfy the increasing food demand. For that reason, it is expected that by 2050 seven out of ten kilograms of foods produced should be from new or improved technologies (FAO, 2009).

The above issues support the need for a new sustainable food system where traditional food production technologies have to be replaced or complemented with applications made with new disruptive technologies. Key enable technologies (KET: Biotechnology, nanotechnology, and ICT) are the main candidates to play a significant role in this change. It is predicted that the nanotechnology market focused on food industry will increase from 7 billion US dollars in 2015 to 20.4 billion US dollar in 2020 (Cerqueira and Pastrana, 2017). This is why academic, industry and government have to build public trust in a strong, credible international oversight process explaining the advantages of products containing nanotechnology.

The future new food system should be oriented in two axes food chain and consumer: In the food chain, axe nanotechnology will provide different solutions in the production of raw materials, processing and distribution. In the same way, in the consumer axe nanotechnology will play a role in the body and gut health and function but also in the sensorial perception and pleasure at mouth and brain level.

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