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Nanofood: the EU legislative framework for the future of food

ABSTRACT

Nanotechnology represents the most recent and most powerful set of technologies being applied across the food system. These technologies are promoted as offering a range of benefits across the agri-food system, including productivity and efficiency gains, more nutritious and safe foods as well as of a new range of nutritionally engineered or ‘functional foods’. Given the present landscape of nanofood sector, government, industry and scientists race to determine and evaluate the potential scientific risks posed by some aspects of nanotechnologies, particularly the risks posed by free engineered nanoparticles. In fact, substances in nanoscale form can have different chemical and physical properties than the corresponding bulk materials (macro-size substances) that make their application in the food and packaging sector worthwhile. At the same time, there are knowledge gaps regarding the toxicological effects of nanomaterials in food and packaging which mean that there is no toxicological knowledge base for risk assessment and legal control. There then arises the most common question: how far the existing food laws are appropriate to deal with exposure risks derived from nanotechnological application in food? A balance between hard and soft nanoregulation requires a dynamic, transparent and inclusive approach adapting to the evolution of the scientific knowledge, to ensure that the regulatory framework governing food is adequate to deal with the novel challenges posed by nanomaterials.