

Opportunities and challenges of nanotech applications in the agri-food sector: need of a comprehensive approach for assessing the risks for human health and the environment

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The benefits of nanotech applications in the agri-food sector arising from the unique properties of nanomaterials (NMs) have to be weighed against the risks for human health and the environment. A wide variety of exposure scenarios and routes can be foreseen based on perspective use in (i) agricultural production, (ii) food processing, and (iii) food contact materials. Approaching the safety assessment of products of nanotechnology is a challenge, since new concepts and tools are needed. Physicochemical properties are critical to point out the toxicological hazards of specific NMs but one main challenge is the fact that NMs with apparently slightly differences in physicochemical properties may pose significantly different hazards and risks. Perspectives in risk assessment of NMs use in the agri-food sector are discussed with emphasis on the need for improvement/adaptation of both analytical methods and toxicity testing approaches.