

Risk assessment of nanotechnology applications in the agri-food sector: a view to the future

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Nanotechnology applications in the food sector may bring benefits, e.g. lead to the production of improved nutrient sources (due to higher bioavailability or less severe side-effects upon ingestion). However potential risks have to be assessed and excluded. The risk of a nanomaterial is determined by its chemical composition, physicochemical properties, interactions with tissues, and potential exposure levels. For agri-food applications, a nanomaterial has to be assessed (i) according to the test requirements relevant to its intended use, complemented with (ii) additional risk assessment information due to the nano-specific characteristics. The two pieces of information are used for a case-by-case risk assessment. For applications that result in the presence of nanoparticles in food, the first issue to be considered is whether there is potential for systemic exposure to such particles. If nanoparticles persist as such after gastrointestinal digestion, they may be absorbed in the gut and a nano-specific risk assessment is required. Appropriate analytical methods and toxicity testing approaches are outlined.