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**QUANTITATIVE DETECTION OF ENGINEERED NANOMATERIALS IN FOODS: MEETING THE NEEDS OF THE REGULATIONS WITHIN THE EUROPEAN UNION?**

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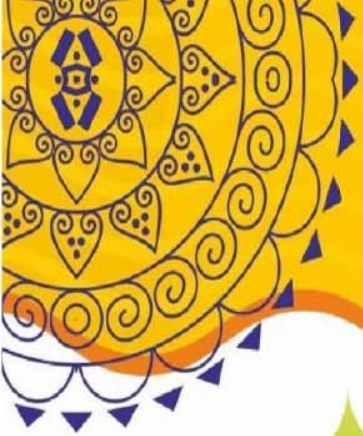
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According to the Regulation (EU) No 1169/2011, foods containing ENMs must be labelled accordingly. Labelling is triggered when more than 50% of the particles of a single chemical identity are smaller than 100 nm according to the current interpretation of the previously mentioned regulation. Several techniques to detect and quantify nanomaterials are available today. The choice of the detection method depends on the nanomaterial to be analyzed and the food matrix it is incorporated in. The following problems have been identified, when applying the available detection methods. It is in general neither possible to distinguish between engineered and natural occurring nanomaterials nor to determine the particle size distribution and the chemical composition of a nanomaterial in a single analytical run. In addition, the method-intrinsic size detection limit ( $D_{min}$ ) was determined to be significantly above 1 nm. Thus, the size range between 1 and 100 nm is not fully covered by the analytical methods available. Furthermore, it is impossible to quantify all particles of the same chemical identity from the nano to the micro or mm range with the same analytical system.

Quantification of unknown nanoparticles in real foods will therefore be at least challenging.

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