

## Peer Review

# Review of: "Thermal and Packaging-Related Nanoparticles in Food: Formation Pathways, Migration Mechanisms, and Toxicological Considerations"

Suhani Patel<sup>1</sup>

1. Independent researcher

This review provides an up-to-date and in-depth examination of nanoparticles that arise either naturally during the thermal processing of food (e.g., fluorescent carbon nanoparticles) or enter food through migration from packaging materials (e.g., silver nanoparticles).

The manuscript skilfully integrates complex subjects such as nanoparticle formation mechanisms, migration behaviour, physicochemical characteristics, and toxicological aspects into a clear and structured synthesis. The work will be of significant value to researchers working in food science, nanotoxicology, public health, and regulatory affairs.

The manuscript is thoughtfully prepared and generally clear. With some minor adjustments, it could further enhance its clarity and resonance with a broader scientific audience.

## 1. Shorten and Simplify Some Sentences

Your writing is rich in information and demonstrates a strong command of complex material. However, some sentences carry multiple ideas at once, which can be challenging for readers to follow, especially in dense, technical sections. Breaking up longer sentences into shorter, more focused ones can help improve clarity and reader engagement without compromising the depth of your content.

## 2. Include a Conceptual Figure

A clear figure summarising nanoparticle sources (FDNPs vs. ENPs), formation and migration pathways, target organs, and analytical techniques would significantly enhance clarity and reader engagement.

3. More Emphasis on Exposure Assessment: The paper could expand on uncertainties and variability in human exposure scenarios, particularly considering diverse diets and consumer behaviours.

#### 4. Clarify and Emphasise Key Points in Recommendations

Towards the conclusion, your practical recommendations are important but somewhat understated. Presenting them in a visually distinct format such as bullet points or bold text would improve their visibility and impact.

#### FINAL ASSESSMENT:

The manuscript demonstrates a high level of scientific rigour. The writing is comprehensive and well-structured, though at times somewhat dense, and could be enhanced through careful condensation and improved clarity.

## Declarations

**Potential competing interests:** No potential competing interests to declare.