Encapsulation: A Promising Technology for Future Food Applications, but What Policies are Countries Following Today?

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INTRODUCTION

During food processing, different materials and technologies are employed to fabricate ultra palatable foods with long shelf lives. For instance, encapsulation is an encouraging technique for food manufacturers to enclose flavours, vitamins, natural products etc. for attractive foods. However, many people are unaware of the adverse effects of nanomaterials in foods. Besides, food additives are encapsulated in many countries such as Germany, Netherlands, Switzerland, the UK and the USA for commercialized food applications (Lugani et al., 2021). Thus, the encapsulation technology is projected with a high amount of market share, but limited knowledge of nano food digestion is possessed.

Moreover, nanotechnological food packaging applications do not generate any concerns for humans, however, nanoparticles might create some health-related issues such as genotoxicity and cytotoxicity as well (Nile et al., 2020). Hence, the results of nanoparticles on humans, animals and the environment are not known (Bajpai et al., 2018).

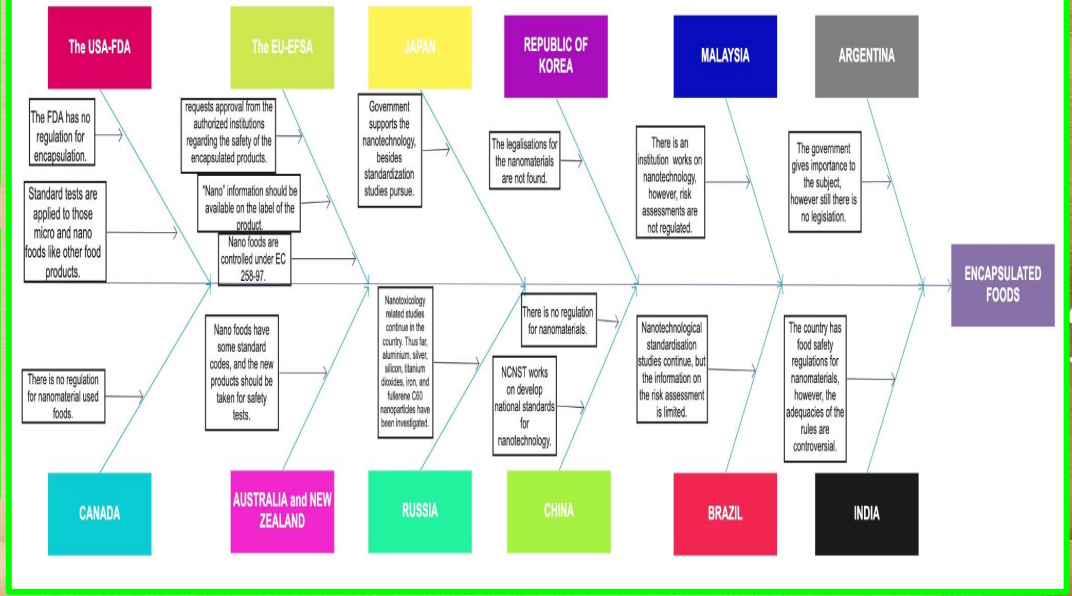
OBJECTIVES

The study aims to review the regulations regarding encapsulation in different countries to highlight the importance of the issue for future food applications and the health of organisms in nature.

CONCLUSION

The encapsulation technology promises interesting outcomes for food applications not only as food ingredients but also as food packaging, and nanosensors etc. Nevertheless, encapsulated food materials are tiny, and accumulations in the human body are unknown.

RESULTS



References

Bajpai, V. K., Kamle, M., Shukla, S., Mahato, D. K., Chandra, P., Hwang, S. K., Kumar, P., Huh, Y. S., & Han, Y. K. (2018). Prospects of using nanotechnology for food preservation, safety, and security. Journal of Food and Drug Analysis, 26(4), 1201–1214. https://doi.org/10.1016/J.JFDA.2018.06.011

Lugani, Y., Sooch, B. S., Singh, P., & Kumar, S. (2021). Nanobiotechnology applications in the food sector and future innovations. Microbial Biotechnology in Food and Health, 197. https://doi.org/10.1016/B978-0-12-819813-1.00008-6

Maksimović, M., Omanović-Mikličanin, E., Badnjević, A., Maksimović, M., Omanović-Mikličanin, E., & Badnjević, A. (2019). Is Nanofood Safe? In Nanofood and Internet of Nano Things (pp. 87–137). Springer International Publishing.

Nile, S. H., Baskar, V., Selvaraj, D., Nile, A., Xiao, J., & Kai, G. (2020). Nanotechnologies in Food Science: Applications, Recent Trends, and Future Perspectives. Nano-Micro Letters 2020 12:1, 12(1), 1–34. https://doi.org/10.1007/S40820-020-0383-9