

Research on the impact of microplastics in the New Zealand diet on human health

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Risk Profile: Microplastics in the diet
(Pantos *et al.*, 2019)



Conclusions Risk Profile MP in NZ diet:

- MPs/NPs are an emerging area of concern;
- Impact of chemical and/or microbial contamination of MP/NP is unknown;
- Data on occurrence of MP/NP and their contaminants are lacking;
- The risk to human and terrestrial animals to MP/NP contamination after oral exposure is unknown.



New Zealand Food Safety Research

What

- Food survey to determine the levels of microplastics in a range of food categories, including indigenous food;
- *In vitro/ex vivo* bioavailability study of microplastics after oral exposure to humans;
- Assessment of the impact of microplastics contamination to the primary industries.

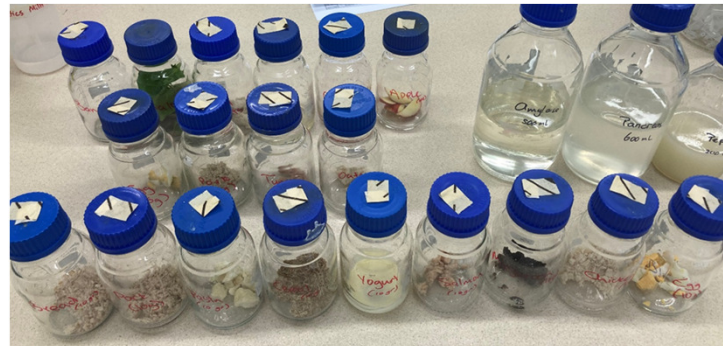
When

April 2020 – November 2024

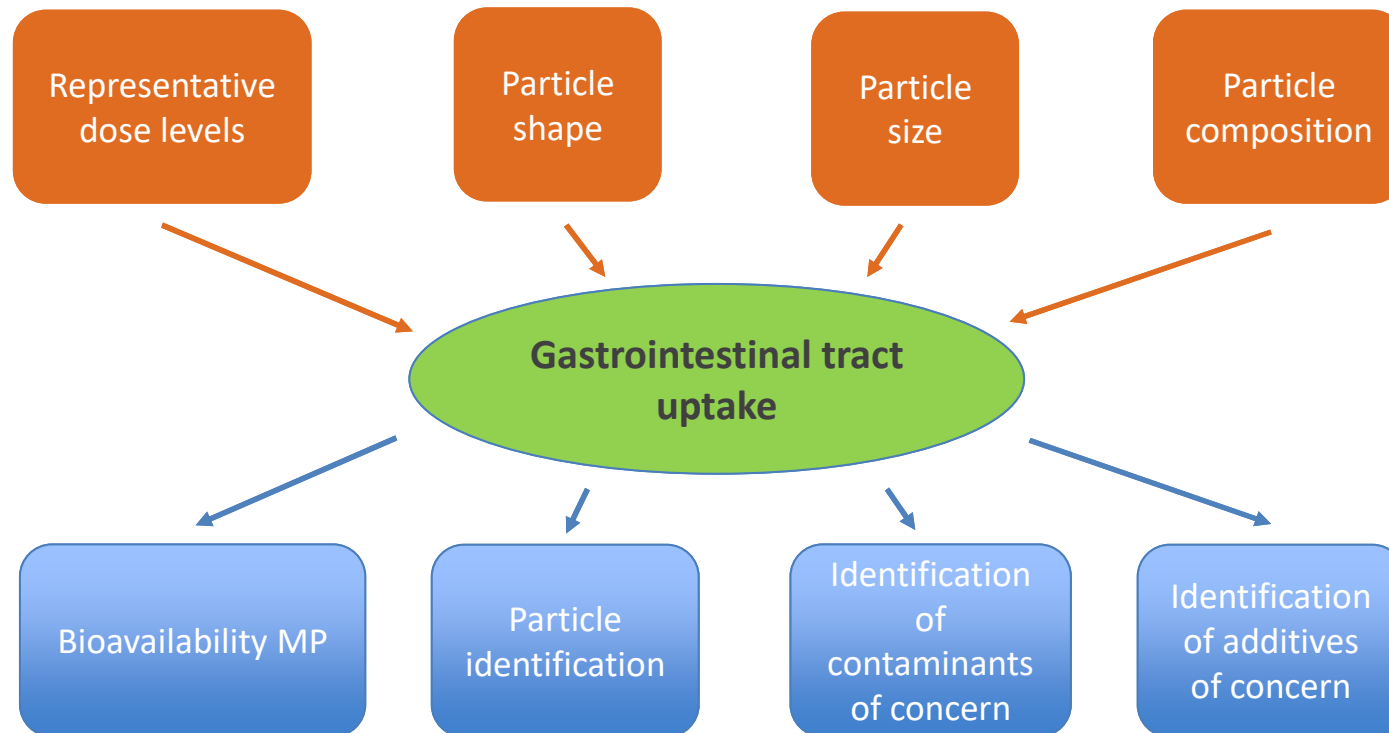


Food survey

- ➔ NZ food survey categories: *Fruits, Vegetables, Grains, Animal Products, Beverages, Miscellaneous, Indigenous Food*;
- ➔ Development of analytical method for the detection and identification of MPs in different food matrices;
- ➔ Extraction of MPs from different food matrices without impacting plastics;
- ➔ Use enzymes for digestion; like amylase, pancreas, pepsin, trypsin.



In vitro / ex vivo bioavailability study



NZ research

The impact of microplastics in the New Zealand diet on human health.

(New Zealand Food Safety)

Impacts of microplastics on New Zealand's bioheritage systems, environments and ecoservices.

(Ministry of Business, Innovation and Employment Endeavour Fund)

Research on sources and types of plastics in fresh waterways.

(National Institute of Water and Atmospheric Research)

NZ Publications

Leaching and extraction of additives from plastic pollution to inform environmental risk: A multidisciplinary review of analytical approaches. (Bridson *et al.*, 2021)

Comparison of Deposition Sampling Methods to Collect Airborne Microplastics in Christchurch, New Zealand (Knobloch *et al.*, 2021)

Microplastic contamination in Auckland (New Zealand) beach sediments (Bridson *et al.*, 2020)

Rethinking Plastics in Aotearoa New Zealand (Office of the Prime Minister's Chief Science Advisor, 2019)

Plastics in the Environment: Te Ao Hurihuri – The Changing World (Royal Society Te Apārangi, 2019)

Microplastics in the New Zealand green lipped mussel. *Perna canaliculus* (Webb *et al.*, 2019)

Double trouble in the South Pacific subtropical gyre: Increased plastic ingestion by fish in the oceanic accumulation zone (Markic *et al.*, 2018)

