
Microplastics in Spanish bottled water

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Abstract

Microplastics (MPs) are ubiquitous polymer particles with range size from 1 μm to 5 mm. They have been detected in air, soil, food, and marine-, waste-, fresh-, tap- and bottled-water, being the main human exposure routes inhalation and ingestion.

In this study, a total of 22 different mineral and sparkling water samples, packaged in plastic, glass and cans, were bought from local supermarkets and their MP content was studied. For this purpose, the total volume of each bottle was directly filtered in a silicon filter and analysed by micro-Fourier Transform Infrared spectroscopy (μ -FTIR). Blanks were carried out in each batch to control the contamination in the ambient of laboratory.

MPs ranged from 0 to 27 particles/L with a median of 6.67 particles/L, being the estimated daily intake through bottled water 160.5 particles/kg b.w./year (considering that the average bottled water consumption in 2021 in Spain was 65.71 L/year) The polymers most identified were cellulosic fibres (either natural and semisynthetic) (63%), polyamide (15%), polyethylene terephthalate (6%) and polyethylene (4%).

References:

- (1) Microplastics in drinking-water. Geneva: World Health Organization; 2019.
- (2) Informe del consumo de alimentación en España 2021. Spain: Ministerio de Agricultura, Pesca y Alimentación, 2022.

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