Use of the nematode *Caenorhabditis elegans* as a biomodel to investigate the toxic effects of the plasticizer bisphenol A and their chemical analogues

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The nematode *Caenorhabditis elegans* is a widely used and promising model organism in various areas of research, including developmental biology, genetics, medical sciences, and toxicology.

Interest in *C. elegans* as a biomodel is based on several key advantages, such as: (i) ease of use and maintenance, together with its low cost; (ii) a short life cycle (approximately 3 days from egg to adult) and high reproductive capacity; (iii) high genetic homology (60–80%) with humans; (iv) a transparent body that allows direct observation of complex biological processes such as embryogenesis and morphogenesis; and (v) a strong capacity for genetic manipulation, with the availability of mutants and fluorescent reporters for mechanistic studies.

The main objective of this study was to investigate the effects on growth, reproductive rate, longevity and obesity following exposure to the plasticizer bisphenol A and its analogues in different strains of *C. elegans*.

Depending on the evaluated parameter, L1 or L4 larvae were selected, and different exposure times were considered in each case. In general, the assays were carried out at 20°C in liquid medium, or, at 25°C for longevity assays, using increasing concentrations of the tested chemicals. Body size, larval number and survival time were quantified using a digital fluorescence microscopy system.

The preliminary results showed some significant effects in the reproductive, longevity and obesity tests compared to the growth assays; however, further investigation is required to expand the current findings.

In conclusion, the methodologies applied indicate that *C. elegans* is a useful biomodel for environmental toxicology research.

Funding: This work was partially funded within the framework of the European Partnership for the Assessment of Risks from Chemicals (PARC), Horizon Europe, Grant Agreement No. 101057014 and the project Estrategia de una-salud para evaluar la interacción del cambio climatico en la toxicidad ambiental de plásticos biodegradables y compostables. PID2024-160709OB-I00.