METABOLIC AND BIOCHEMICAL RESPONSE TO ENVIRONMENTAL MICROPLASTICS IN CULTURED ZEBRAFISH (*Danio rerio*)

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Once the distribution of microplastics (MPs), their composition, and their hazard to marine organisms are widely understood, it would be time to investigate polluted MPs' impact on marine organisms' biochemistry. Dangers at cellular levels as well as at different food-web levels should be explored.
Here, we studied the effect of beach-stranded microplastics (MPs) on vertebrate model organism, *Danio rerio* (zebrafish). MPs were collected from two beaches of Canary Island, Lambra-beach in La Graciosa, and Poris-beach in Tenerife. These beaches were selected for the type and amount of pollutants that their MPs had absorbed (plasticizers, UV filters, lubricants, etc). Zebrafish were exposed to four different diets during 30 days: a control diet(A), food with 10% virgin MPs (B), food with 10% Lambra-MPs (C), and food with 10% Poris-MPs (D). We sampled the organisms at the beginning of the experiment (T_0), after 7 (T_7), and after 30 days (T_{30}). We measured *D. rerio*'s electron transport system activity (ETS), proteins (PROT), lipids (LIP), and carbohydrates (CARB) content and, in energetic terms, energy available (Ea), energy consumed (Ec), and the CEA index (a proxy to study the energy budget balance).
Proteins were the most prevalent energy-rich compound (80-84% Ea), followed by carbohydrates (10-13% Ea) and lipids (4-7% Ea). These percentages remained stable over time and treatments, showing no change in composition in response to MP-ingestion. Furthermore, except in one case, no significant differences ($p<0.05$) were found between the different treatments, nor during the time-periods of each treatment.
We conclude that, under our conditions, for at least 30 days, zebrafish are not significantly affected by microplastic ingestion.

Key words: Microplastics, zebrafish, electron transport system, metabolism, CEA index

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