

WP5 – Toxicological impact of relevant priority chemical contaminants in public health.

WP5 Lead partner: UM

Other partners involved: IPMA, AZTI, IRTA and AEIFORIA

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Summary

The aim of this work package is to address the toxicological evaluation of relevant priority environmental contaminants in seafood (with insufficient toxicological information available) in realistic conditions (mixtures of contaminants and real samples).

Objectives

1. To determine bioaccessibility of relevant priority environmental contaminants identified in WP3 in selected seafood products.
2. To determine bioavailability of relevant priority environmental contaminants (real concentration that is available to the body) in processed food samples prepared in 5.1.1 in the small intestine of pig and human in the established pig and human small intestinal functional cell model (SIM) at the level of the intestinal epithelium.
3. To determine synergistic / antagonistic effects between relevant priority contaminants in seafood products and other food components.
4. To determine synergistic / antagonistic effects between relevant priority contaminants on cytotoxicity and genotoxicity after short and long term exposure of intestinal epithelial cells, immune cells, hepatocytes and nerve cells.
5. To determine cytotoxicity of relevant biotoxins and synergistic / antagonistic effects between them.
6. To investigate endocrine disruption potential of mixtures of relevant priority contaminants.
7. To determine the effects of relevant priority contaminants mixtures and food samples on an entire model vertebrate (zebrafish) and detect the biological pathways affected.
8. To investigate the organ-specific effects of food samples with relevant priority contaminants.

9. To provide toxicity data on selected contaminants (i.e. biotoxins) by mouse bioassay (if required).

Tasks

Task 5.1. Bioaccessibility and bioavailability of contaminants.

Task 5.1.1. Bioaccessibility..

Task 5.1.2. Bioavailability.

Task 5.1.3. Synergistic / Antagonistic effects.

Task 5.2. Human cell lines.

Task 5.2.1. Cytotoxicity and genotoxicity.

Task 5.2.2. Neurotoxicity.

Task 5.2.3. Endocrine disruption.

Task 5.3. Zebrafish.

Task 5.3.1. Short-term toxicity.

Task 5.3.2. Long-term toxicity.

Task 5.4. Mouse bioassays (if required).