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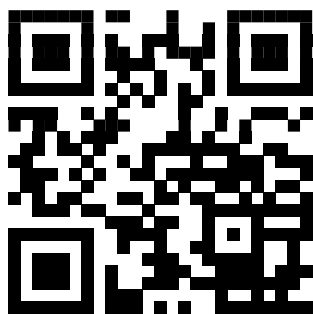
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BOOK OF ABSTRACTS





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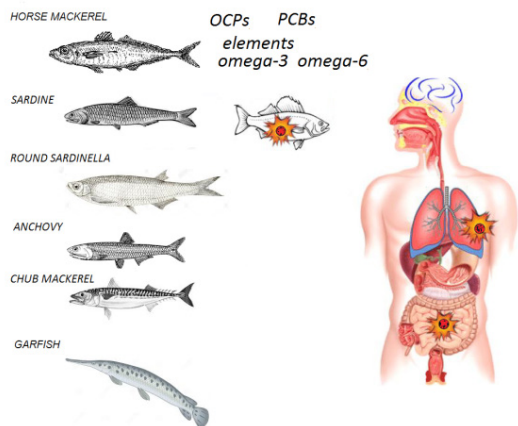
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The Health Risk and Benefit Assessments for the Pelagic Fish Species' Consumers

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To balance the ingestion of healthy omega-3 and omega-6 fatty acids and adverse chemicals the assessments of benefits and risks of the fish consumption should be of the great importance. Elements, Persistent organic pollutants – POPs (organochlorine pesticides – OCPs and polychlorinated biphenyls – PCB), and omega-3 and omega-6 fatty acid contents were determined in six small pelagic fish species from the Adriatic Sea in Croatia to assess health risks for consumers. 16 element, 24 POPs and 14 fatty acid contents were determined in edible fishes to assess worst-case scenario, diseases development risks and benefit-risk for consumers. The results of this study were published in the scientific journal [1].

Element concentrations were measured by inductively coupled plasma mass spectrometry (ICP-MS), POPs by high-resolution gas chromatography (HRGC) and fatty acid content by gas-liquid partition chromatography (GLPC). The results of our study showed that diet based on chub mackerel and round sardinella have highest DI of essential omega-3 fatty acids and lower daily intake (DI) of POPs than other fishes. By consuming anchovy and round sardinella lower ingestion of toxic elements can be ingested. There was not observed non-carcinogenic (HI) nor carcinogenic (CR)

risks based on POP concentrations, while based on element concentrations, there was low HI ($0.1 \geq HI \geq 1$) and the maximum HIs and outlier values (several horse mackerel and anchovy samples) showed the presence of HI ($HI > 1$). The most significant contributor to total non-carcinogenic and carcinogenic risks was inorganic As. Acceptable CR for consumers was assessed, but maximum CR for consumers of horse mackerel and anchovy ($CR \geq 1 \times 10^{-6}$) showed adverse effects on human health. There were low HIs for developing cardiovascular, nervous, and reproductive diseases, and maximum HIs were higher than 1. Acceptable ($1 \times 10^{-4} \geq CR \geq 1 \times 10^{-6}$) risks were observed for developing cancer of nervous system and reproductive organs. Among investigated fish samples, those with higher ΣBR (benefit-risks) and BR for inorganic As than median value have a higher risk than benefits in the human diet (most of them were collected in 2015) [1].

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[1] Milićević, T., Herceg Romanić, S., Popović, A., Mustać, B., Đinović-Stojanović, J., Jovanović, G., Relić, D. Human health risks and benefits assessment based on OCPs, PCBs, toxic elements and fatty acids in the pelagic fish species from the Adriatic Sea. 2022. *Chemosphere*, 287, 132068.