The impact of pollutants (metals and trace elements and organochlorines) on gills and liver of Common bream (*Abramis brama*) and Pike-perch (*Sander lucioperca*)

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Abstract

Discharges of wastewater, enriched with inorganic and organic chemicals, may induce pollution of the aquatic environment and thus affect biological communities. The main problem considering pollution of the Danube River in Belgrade represents the discharges of wastewaters without any previous treatment. This study aims to assess the distribution of pollutants (metals and trace elements, PCBs and pesticides) in the tissues of two commercial fish species (common bream and pike-perch) belonging to the different trophic levels. The metal and trace element concentrations were assessed by inductively coupled plasma mass spectrometry (ICP-MS) while organochlorine pesticides (PCBs and pesticides) were assessed by gas chromatography with electron capture detectors (GC-ECD). Detected As, Cd, Pb and Hg concentrations in the fish muscle were below the maximum allowed concentrations (MAC) established by both the EU and the Republic of Serbia. Gills significantly differ in the concentrations of the most assessed metals and trace elements while liver differs among species in concentrations of As, Cd, Hg and Zn. Detected ndl PCB and pesticides concentrations in both analyzed species were below MAC established by both the EU and the Republic of Serbia. Statistical analysis revealed no significant differences in ndl PCB and pesticides concentrations among analyzed species. In this study it was shown that high position in the food chain doesn't indicate higher tissue contamination, even though arsenic, cadmium, mercury and iron were in higher concentrations in liver and gills of pike-perch.

Keywords: fish, Danube River, metals and trace elements, organic pollutants