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P 77 The seasonal changes in genotoxic potential of the Danube river assessed by comet assay using freshwater bream

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Aquatic ecosystems constant deterioration requires regular monitoring of the genotoxic potential since unrepaired changes in DNA molecule of aquatic organisms may cause consequences on various levels of biological organisation. Fish are one of the most frequently used groups of bioindicator organisms in ecotoxicological field studies. The seasonal changes in genotoxic potential of the Danube River were assessed by comet assay on three tissues of freshwater bream *Abramis brama*, which is a wide spread, autochthonous species in this river, often used in human nutrition. For assessment of DNA damage we used Comet assay (single cell gel electrophoresis) SCGE.

The study was carried out on the site Višnjica, situated downstream Belgrade (Serbian capitol) which is identified as one of the major hotspots of faecal pollution along the Danube River. Basic physico-chemical and microbiological parameters of water quality were monitored along with the sampling of fish blood, liver and gills in February, April, August and November 2014. Comets were randomly scored and analyzed using Comet IV computer software (Perceptive Instruments, UK). DNA damage level is expressed using Tail Intensity (TI).

All three tissues had highest level of DNA damage in August, which was month with the highest water temperature. Blood had the lowest DNA damage level in November, gills in April and liver in February. Similar response in all tissues was noticed with slight variations which is expected considering the differences in the level of exposure and metabolism in the selected tissues. Freshwater bream is shown to be a potentially good indicator organism in field studies of genotoxic potential.