Globaqua-Cytothreat-
Endetech-Scarce
Workshop

PHARMACEUTICALS IN WASTEWATERS AND SURFACE WATERS UNDER MULTISTRESSORS SITUATION:
Fate, Adverse effects, Risks and Removal Technologies

2nd-3rd December 2014
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In situ assessment of DNA damage in *Branchiura sowerbyi* Beddard, 1892 (Oligochaeta: Tubificidae) from the Sava river using comet assay

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Aquatic oligochaete, *Branchiura sowerbyi* (Beddard, 1892) is a cosmopolitan tubificid species commonly found in organically enriched freshwater environments. These aquatic worms inhabit river and lake sediment where they feed by decomposing organic matter. *B. sowerbyi* is characterized by limited mobility and could be used as effective indicator organism. Collecting of *B. sowerbyi* was done monthly during 2014 on the Sava River (sampling site Duboko). Duboko is situated downstream of city Obrenovac (50.000 inhabitants). The site is under the influence of two major pollution sources. One is the Kolubara River (under the influence of various pollution pressures, including wastewaters from town Obrenovac) and the other is thermal power plant "Nikola Tesla" which is situated few kilometres upstream. Suspensions of cells (haemocytes and coelomocytes) were used for the assessment of genotoxicity by comet assay. As reference the value of Comet response obtained from individuals acclimatized in controlled aquarium conditions was used. For each sampling images of 200 nuclei were analyzed with a fluorescence microscope and analysed using the software Comet Assay IV. During the period of investigation the wider area of investigation was affected by a huge flooding (May 2014) when entire city of Obrenovac was evacuated and consequently there was not wastewater discharges. Therefore, in May and June one source of pollution was excluded. Comparing with reference value, the significant increasing of DNA damage was recorded during examination period, except in May and June. Also, microbiological quality of water was assessed each month. High correlation with faecal indicators indicates that integrity of DNA molecule of *B. sowerbyi* is affected by urban pollution.

This research has received funding from the European Community's FP7 agreement n° 603629-ENV-2013-6.2.1.-Globaqua