

MEETING ABSTRACTS

NON-STEROIDAL ANTI-INFLAMMATORY DRUGS – POTENTIAL RISK FOR NON-TARGET AQUATIC ORGANISMS

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Non-steroidal anti-inflammatory drugs (NSAIDs) are drugs with analgesic, antipyretic and anti-inflammatory effects. They are widely used in human and veterinary medicine. The most used NSAIDs include ibuprofen, diclofenac, naproxen. Due to their excessive use surface water pollution occurs. A total of 65 samples of surface water from the Elbe river basin were taken during August 2018 when the weather was constant without any significant fluctuations. The analysis was performed by means of liquid chromatography with tandem mass spectrometry (LC-MS/MS). A statistically significant negative correlation between the river flow rate in the monitored locations and the residue concentration was found for ibuprofen, naproxen, diclofenac. The most significant findings of the monitored drug residues were mostly determined in samples from small streams below larger urban settlements with a hospital or other health facilities. It was found that non-steroidal anti-inflammatory drugs can in increased concentration cause oxidative stress, damage to the liver, gills and kidneys and cause reproductive disorders in fish. They also negatively affect aquatic invertebrates, representatives of producers (phytoplankton) and consumers (zooplankton, zoobenthos) and destruent (bacteria).

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Keywords: NSAIDs; ibuprofen; naproxen; diclofenac

References

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