HERBICIDE MICROPOLUTANTS IN SURFACE, GROUND AND DRINKING WATER WITHIN AND NEAR THE AREA OF ZAGREB, CROATIA

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AIM

➢ To investigate the frequency and mass concentration of 13 herbicides in surface, ground and drinking waters in the area of the city of Zagreb and its suburbs

➢ To extend knowledge regarding water contamination by herbicides not included on the list of Priority Substances in the Field of Water Policy (DIRECTIVE 2013)

EXPERIMENTAL

➢ Compounds analysed:
Triazines: atrazine, terbutylazine, deethylatrazine (DEA), deisopropylatrazine (DIA), deethylterbutylazine (DET);
phenylureas: diuron, linuron, chlortoluron, isoproturon;
chloroacetanilides: alachlor, acetochlor, metolachlor and dinitroaniline trifluralin

➢ Analysis:
Sample:
- 500 mL of water
- > 1000 mL of water
SPE:
- Octadecylsilica, 
- Cyanopropylsilica, 
- divinylbenzene, SDB
Quantitative analysis:
- GC-MS
- HPLC-UV DAD

➢ Sampling:
Monthly from January to December 2014: 84 surface water samples (7 locations)
180 ground water samples (15 locations)
252 drinking water samples (21 locations)

RESULTS

Atrazine was the most frequently detected herbicide in drinking water samples (84%) and ground waters (92%).

Atrazine concentration was higher than 200 ng L⁻¹ in 15% of surface water samples.

The most frequently (59%) and highly measured (887 ng L⁻¹) herbicides in ground waters were metolachlor and deethylterbutylazine.

Acetochlor mass concentrations of 107 to 117 ng L⁻¹ in three tap water samples were the highest measured.

Atrazine mass concentration and frequency of occurrence in surface waters was lower in 2014 than in 1992-2001.

Agricultural activities in the surrounding areas influenced the purity of surface, ground and drinking waters.

ACKNOWLEDGMENT

This work has been supported in part by the Croatian Science Foundation under project 8366.