Environmental Engineering and Management Journal *February 2012, Vol.11, No. 2, 319-323*
http://omicron.ch.tuiasi.ro/EEMJ/

"Gheorghe Asachi" Technical University of Iasi, Romania

ASSESSING IMPACTS OF TRIAZINE PESTICIDES USE IN AGRICULTURE OVER THE WELL WATER QUALITY

Andreea Dragus[1], Mihail Simion Beldean-Galea[1*], Radu Mihaiescu[1], Tania Mihaiescu[2], Dumitru Ristoiu[1]

[1]UBB Cluj, Faculty of Environmental Science and Engineering, 30 Fantanele Street, 400294, Cluj–Napoca, Romania
[2]University of Agricultural Sciences and Veterinary Medicine Cluj–Napoca, Faculty of Agriculture, 3–5 Manastur Street, 400372, Cluj–Napoca, Romania

Abstract

The herbicide use can be seen as an auxiliary path for new farming methods, providing more advantageous farming and land use capabilities and increasing crop yields. Some of them are quickly degraded but others persist in the environmental compartments being toxic for human health and the environment.
The aim of this study was to evaluate the impact of some triazine herbicides from agricultural sources on quality of well and surface water, in two regions of Romania with different agricultural activities. The study was focused on determination of triazine content from well waters used for human consumption. The triazines were isolated from water samples by solid phase extraction and analyzed by HPLC and UV detection.
The results showed that the incidence of triazine herbicides in well water is connected with the agricultural activity, respectively the use of herbicides. Thus, the highest concentration of triazine compounds (10.47 µg/L), was found in well water samples collected from Turda area, with intense crop production activity, whilst in Sighisoara area, an area with intense livestock breeding, the measured concentration was lower, around 5 µg/L. Surface water (Aries river) showed the lowest concentration of triazine, due to reduced farming activities in the catchment. Another point of this study showed that, the number of compounds, which were identified in well water, is variable, the most present compounds being atrazine and simazine. The results showed that the amount of triazine pesticides found in well water present a potential hazard over the population which uses this water for domestic requirements.

Key words: herbicides, triazines, well water

Received: September, 2011; Revised final: January, 2012; Accepted: February, 2012

[*] Author to whom all correspondence should be addressed: e-mail: enviro@ubbcluj.ro; simion.beldean@yahoo.com; Phone: +40264307030