



Exposure assessment of the Walloon population to pesticides within the BMH-WAL study

Catherine Pirard¹, I. Ruthy², A. Jacques², S. Remy², P. Hoet³, V. Haufroid³, H. Demaegdt⁴, C. Charlier¹

¹ Laboratory of Clinical, Forensic and Environmental Toxicology, CHU of Liege, B35, B-4000 Liege, Belgium

² Scientific Institute of Public Service, Environmental-Health Unit, Rue du Chéra 200, B-4000 Liege, Belgium

³ Louvain Centre for Toxicology and Applied Pharmacology (LTAP), UCLouvain, Institute of Experimental and Clinical Research (IREC), Avenue Hippocrate 57/B1.57.06 1200 Woluwe-Saint-Lambert Brussels, Belgium

⁴ Sciensano, Service Trace Elements and Nanomaterials, Leuvensesteenweg 17, B-3080 Tervuren, Belgium

Presenting author: c.pirard@chuliege.be

Abstract

In Belgium, while biomonitoring surveys have been implemented in Flanders for more than two decades, nationwide biomonitoring data are still lacking. Moreover, exposure to environmental pollutants of the population in the Southern part of the country has been poorly documented. To fill this gap, the BMH-Wal project was launched in 2019 to provide background reference values for a representative Walloon population for several inorganic and organic pollutants, including various classes of currently-used pesticides. Therefore, 283 adolescents (12-19 years old) and 261 adults (20-39 years old) were recruited mainly in 2020, while 601 children (3-11 years) were recruited mainly in 2021. They provided spot urine samples and answered a questionnaire about their daily life, dietary consumption, and home environment. Glyphosate and its metabolite, 6 metabolites of organophosphorous pesticides, and 5 pyrethroid metabolites were measured by LC-MS/MS and GC-MS/MS. The Walloon population studied showed on average detectable levels of at least 5 pyrethroid and/or organophosphorous metabolites, demonstrating the wide exposure of the population, with higher exposure for younger volunteers. Some predictors of exposure were highlighted such like the presence of pets at home, and some behaviour were demonstrated to decrease the some pesticide exposure such like the consumption of organic food.

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