

**WE008 Accumulation of perfluoroalkylated acids (PFAAs) in Belgian home-produced chicken eggs along different directions from a fluorochemical plant** R. Lasters, UA / Biology; T. Groffen, Systemic Physiological and Ecotoxicological Research (SPHERE), University of Antwerp / Department of Biology; M. Eens, University of Antwerp / Department of Biology; L. Bervoets, University of Antwerp / Department of Biology (SPHERE Research Group). Perfluoroalkylated acids (PFAAs) can enter the food chain due to their persistence, widespread use and global distribution. Field research has demonstrated that these substances can bioaccumulate and biomagnify in wildlife. Hence, it is very plausible that PFAAs can biomagnify to high concentrations in humans. For these reasons, PFAAs may pose a significant risk to human health as residents may inadvertently consume PFAA contaminated food. Over the last decade, humans consuming food products from self-cultivated origin has become a remarkable trend in rural, urban and even industrial environments. For instance, the housing of free-ranging chickens for egg production has gained popularity as eggs constitute an important component of the Western-European diet. At the same time, the dominant exposure pathway of PFAAs is the dietary intake route. Therefore, the main objective of this study was to analyze and examine the pattern of PFAAs in home-produced chicken eggs from households and to assess potential health-risks of PFAAs via consumption of these eggs to local residents. In total 70 individual eggs were collected from 35 volunteers who kept free-ranging laying hens within a radius of 5 Km from a fluorochemical plant in Antwerp. In total, nine PFAA compounds could be detected in the egg samples. Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were the two most frequently detected compounds with equal detection frequencies of 97%. The concentrations of these compounds ranged from, respectively, 0.54 – 241 ng/g ww and 0.21 – 2.38 ng/g ww. PFOS concentrations followed a clear decreasing pattern from the fluorochemical plant onwards, which indicates that ingestion of soil particles and organisms through pecking behavior might be a dominant source of PFAA contamination in the eggs. PFOS concentrations in some of the eggs exceeded the tolerable daily intake (TDI) values. This study demonstrates that the consumption of home-produced eggs can be an important dietary exposure pathway of PFAAs to humans, although the concentrations mostly did not exceed the available tolerable daily intake values. Finally, PFOS may represent a possible health-risk to local residents via the consumption of home-produced eggs.