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Households as emission source for biocidal active substances in urban environments

Stefanie Wieck[1]; Oliver Olsson[1]; Klaus Kümmerer[1]

[1]Institute for Sustainable and Environmental Chemistry, Leuphana University of Lüneburg, Scharnhorststr. 1, 21335 Lüneburg, Germany; contact: wieck@leuphana.de

Introduction

Insect repellents, disinfectants, preservatives – several biocidal active substances falling under the Biocidal Products Regulation (EU) 528/2012 (BPR) are designated for the use in households. However, it is widely unknown which biocidal active substances are used in what amount in households. Consequently, the contribution of biocidal active substances from households to the pollution of wastewater is unclear. Additionally, e.g. preservatives that are used in personal care products do not fall under the BPR but under the Cosmetic Products Regulation (EC) 1223/2009. This leads to the situation that the total amount of biocidal active substances used in households might not be evaluated under the BPR because a fraction of the use can fall under a different regulation depending on the function of the respective product. As exposures resulting from different regulatory areas are not aggregated during current environmental risk assessments, the risks of these active substances might be underestimated.

Objectives

The objectives of this contribution are therefore
(i) to identify the biocidal active substances that can be found in households and
(ii) to show the product categories they are used in.

Material and methods

Study site:
- 94 households in Germany, high proportion of elderly, rural environment

Interviews:
- Interviews (03 – 05/2015) with standardised questionnaires (not part of this poster presentation) combined with product inventory by scanning of barcode
- Topic of questionnaire: use of biocidal products, plant protection products, washing and cleaning agents and personal care products
- Scanning of the following products:
  - all products for the control of pests (incl. biocidal products, plant protection products, products against fleas and lice),
  - all washing and cleaning products,
  - certain personal care products with high release to wastewater: shampoo, body wash, bath additives, conditioner, soap, toothpaste, mouth wash, body lotion, hand cream, hair styling products, hair dye and make-up remover.

Results

(i) Biocidal active substances found in the households

- Retrieved:
  - Names of 96 % of the scanned products
  - Ingredients of 93 % of the scanned products
- 214 different biocidal active substances detected that were at least identified under the old Biocidal Products Directive 98/8/EC
- Figures only include information regarding active substances currently under review[1] or approved active substances[2] (69 substances)

(ii) Sources of biocidal active substances

- High amount of biocidal active substances in personal care products and washing/ cleaning agents
- Average number of active substances in a product:
  - Pest control: 1.6
  - Personal care: 1.5
  - Washing/cleaning: 1.1

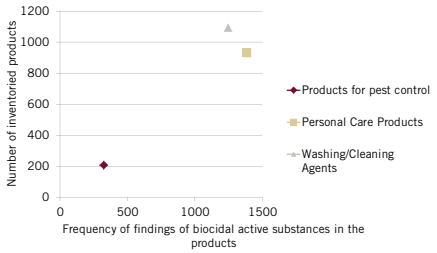

Figure 1: Findings of biocidal active substances in the respective product categories

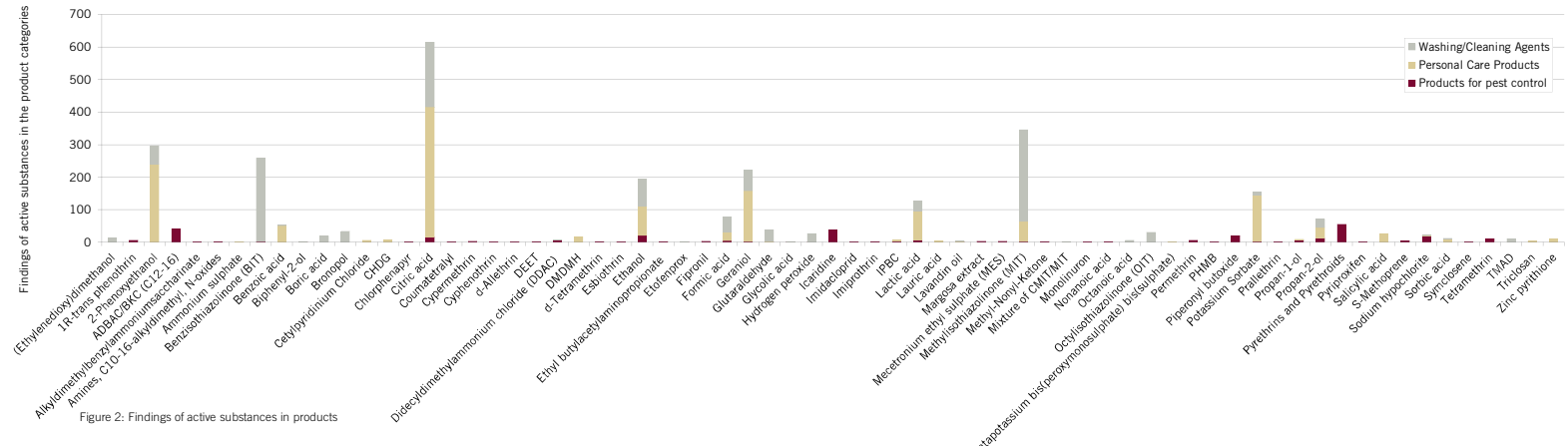

Figure 2: Findings of active substances in products

Discussion and outlook

The analysis of the product inventory shows that the main share of biocidal active substances in households does not originate from biocidal products. The substances mainly originate from personal care products or washing and cleaning agents. While preservatives used in washing and cleaning agents are considered during the risk assessment under the BPR the use of other substances or the use of biocidal active substances in personal care products are not covered. Triclosan for example was only found in personal care products but not in biocidal products. Other substances are used in another way as assessed under the BPR. Boric acid (reprotox, cat. 2) for example is only evaluated as wood preservative but not as an ingredient in detergents. This indicates gaps in the current risk assessment of biocidal active substances.
Figure 2 shows the high number of different active substances present in the households. In a next step these substances will be evaluated regarding their degradability. Afterwards the wastewater of the questioned households will be analysed for these substances.

[1] According to the Commission Delegated Regulation (EU) No 1062/2014 on the work program for the systematic examination of all existing active substances contained in biocidal products

[2] Retrieved 27.11.2014

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