YLVA SJÖSTRÖM works as an environmental hygienist at the Department of Occupational and Environmental Medicine at the University Hospital in Örebro.

In this thesis, efforts have been made to assess children's exposure to chemicals in indoor environments, focusing on halogenated flame retardants (HFRs), organophosphate esters (OPEs), and phthalates. These chemical classes include some compounds associated with endocrine-disrupting potentials and related health risks, with some listed under the Stockholm Convention and others being strictly regulated within the European Union.

The overall objective of this thesis was to explore children's exposure to endocrine disrupting chemicals (EDCs) focusing on everyday indoor environments, selected chemical classes with relevance for indoor settings, i.e. flame retardants and plasticizers, and applying bioanalytical methods for the measurement of mixture effects.

The findings in this thesis confirm that children's indoor environments, such as preschools and homes, can serve as significant sources of exposure to these chemicals. One of the key insights from the study is the shift in exposure patterns, as emerging HFRs and OPEs are replacing legacy HFRs in various products and building materials. This shift indicates changing exposure scenarios for children.

Furthermore, determinants of children's exposure to flame retardants and plasticizers related to indoor environments were identified. For example, chemical levels varied significantly between the two studied municipalities, suggesting that legally binding public procurement policies may have contributed to these differences, reflecting a potential positive impact of such regulations. Associations between endocrine activities of indoor dust and the presence of flame retardants and plasticizers in various exposure matrices suggest that plasticizers may be driving the endocrine activity of indoor dust.

ISSN 1651-4270
ISBN 978-91-7529-592-3

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2024

ÖREBRO UNIVERSITY

Doctoral Dissertation

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– a chemical and bioanalytical approach

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Chemistry

Örebro Studies in Chemistry 32 | ÖREBRO 2024

ÖREBRO UNIVERSITY

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