Contents

List of abbreviations

Chapter 1 Introduction and objectives.

Chapter 2 Simultaneous analysis of multiple neurotransmitters by hydrophilic interaction liquid chromatography coupled to tandem mass spectrometry.

Chapter 3 Changes of neurotransmitter profiles during early zebrafish (*Danio rerio*) development and after pesticide exposure.

Chapter 4 Cross-platform metabolic profiling: application to the aquatic model organism *Lymnaea stagnalis*.

Chapter 5 Investigation of imidacloprid induced toxicity using multiple metabolomics strategies in the central nervous system of the freshwater snail *Lymnaea stagnalis*.

Chapter 6 Pesticide mixture toxicity in surface water extracts in snails (*Lymnaea stagnalis*) by an acetylcholinesterase inhibition in vitro assay and metabolomics.

Chapter 7 Discussion, concluding remarks and outlook.

Summary

Samenvatting

Curriculum Vitae

List of publications

Acknowledgments