

Preface

The industrial revolution brought different benefits to society, some translated into the exponential development of medicine and pharmacy. The identification and differential diagnosis of some not so uncommon psychiatric diseases implied the generalized usage of specific pharmaceuticals, mainly by the so-called developed societies and, as a consequence, some very complex molecules reach urban wastewater treatment plants, which are not prepared to deal with them, to remove or degrade them, before accumulating into environment.

This condensed text tackles with the definition of the environmental problem resulting from the generalized consumption of psychiatric pharmaceuticals observed in the last few decades as a consequence of the degradation of social and economic circumstances of modern society. Classification, production and consumption of psychiatric pharmaceuticals are reviewed, as well as the processes through which these molecules reach and accumulate in the environment. The metabolic pathways of such pharmaceuticals are referred, and this justifies the toxicological assessment in terms of nontarget organisms. The text continues with the state of the art of conventional and advanced processes to remove and to degrade the main molecules associated with psychiatric pharmaceuticals. The analytical methods to quantify trace concentrations of such complex molecules are crucial to the success of the monitoring of this specific contamination, so they are reviewed and compared in a specific chapter. Finally, new perspectives on greener and more sustainable products and processes within pharmaceutical industry are considered and discussed in the final chapter.

This SpringerBriefs book aims to present a broad but summarized approach that may help researchers, students and engineers to build a solid perspective of this emerging issue.

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in Wastewater

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