

## Foreword

This special issue of the *Journal of Hazardous Materials* contains a collection of papers dealing with the potential problems related to the presence of pharmaceuticals in the environment. The persistent presence of these species in soil and water is becoming a topic of great concern at present, as the consequences of even trace amounts of these compounds in the environment may indeed prove to be quite significant. About 4000 active substances with a wide range of different chemical structures are sold in Europe only for human use. Many others are employed in veterinary practice and animal breeding. Following intake, a great number of drugs are excreted non-metabolised, as parent compounds, and often are only partially removed from water in the sewage treatment plants, thus entering into the environment. In other instances, pharmaceuticals may be converted to metabolites that have undesirable environmental behaviour.

In the recent years, many research efforts have been made worldwide to collect the required information that will allow a proper assessment of the risks associated with the release of pharmaceuticals to the environment and the development of appropriate abatement strategies. The European Union financially supported in the period 1999–2004 three specific projects (REMPHARMAWATER, POSEIDON and ER-AVMIS) and a conference on this topic (ENVIRPHARMA European Conference, April 2003). The present special issue contains nine representative research articles that

address the three main aspects that will allow a satisfactory and complete facing of the problem: the occurrence and monitoring of pharmaceutical substances in the environment (four articles), the impact of their persistence on living organisms (two articles) and the physicochemical as well as biological technologies that can be employed for their removal from wastewaters (three articles).

We earnestly hope that this publication can contribute to enhance the awareness of the scientific community of the importance to consider the environmental performance of pharmaceutical compounds (in addition to therapeutic effectiveness and cost) and to strengthen the knowledge on this topic and stimulate further relevant research.

Gerasimos Lyberatos (Editor)\*

*Laboratory of Biochemical Engineering and  
Environmental Technology, Department of Chemical  
Engineering, University of Patras, 26500 Rion, Greece*

Roberto Andreozzi (Guest Editor)

*Universita di Napoli, Federico II, Dipartimento di  
Ingegneria Chimica, Piazzale Vincenzo Tecchio  
80, IT-80125 Napoli, Italia*

\* Corresponding author. Tel.: +30 61 997 573  
fax: +30 61 993 070.

E-mail address: lyberatos@chemeng.upatras.gr  
(G. Lyberatos)

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