A brief note on environmental pharmacology.

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Description

Environmental pharmacology is the knowledge, study and the methods implemented for amalgamating the presence of pharmaceutical products and their metabolites in the environment. Pharmaceutical and house care products and their metabolites gain access to the environment through various means and affect the flora and fauna and modulate the ecosystem. The effect on wildlife, biofilms and human are being studied to gain knowledge of sources and causations. Potential risks of development of acute and chronic toxicity, carcinogenicity, interference with hormone and immune systems and drug resistance are of major concern. They may alter the genome and can affect future generations leaving them vulnerable to disease. There are regulations in good manufacturing practices and disposal which takes into account the environmental risks but the knowledge for stakeholders and their implementation is very restricted. Ecopharmacology and ecopharmacovigilance are propagators of green healthcare. A strategy towards human health risk assessment and ecotoxicological hazard evaluation must be developed and risk minimization measures to be sought for and applied.

Environmental Toxicology and Pharmacology

Environmental Toxicology and Pharmacology publishes the results of studies concerning toxic and pharmacological effects of (human and veterinary) drugs and of environmental contaminants in animals and man. Areas of special interest are: molecular mechanisms of toxicity, biotransformation and toxicokinetics (including toxicokinetic modelling), molecular, biochemical and physiological mechanisms explaining differences in sensitivity between species and individuals, the characterisation of pathophysiological models and mechanisms involved in the development of effects and the identification of biological markers that can be used to study exposure and effects in man and animals. In addition to full length papers, short communications, full-length reviews and mini-reviews, Environmental Toxicology and Pharmacology will publish in depth assessments of special problem areas. The latter publications may exceed the length of a full length paper three to fourfold. A basic requirement is that the assessments are made under the auspices of international groups of leading experts in the fields concerned.

The information examined may either consist of data that were already published, or of new data that were obtained within the framework of collaborative research programmes. Provision is also made for the acceptance of minireviews on (classes of) compounds, toxicities or mechanisms, debating recent advances in rapidly developing fields that fall within the scope of the journal.

Pharmaceuticals are routinely reported in the environment, which indicates an increasingly urban water cycle and highlights a global megatrend. Physicochemical properties and intrinsic biological activity of medicines routinely differ from conventional organic contaminants; thus, diverging applicability domains often challenge environmental chemistry and toxicology computational tools and biological assays originally developed to address historical chemical stressors. Because pharmacology and toxicology information is more readily available for these contaminants of emerging concern than other chemicals in the environment, and many drug targets are conserved across species, leveraging mammalian drug discovery, safety testing and clinical pharmacology information appears useful to define environmental risks and to design less hazardous industrial chemicals. Research is needed to advance biological read across, which promises to reduce uncertainties during chemical assessment aimed at protecting public health and the environment. Whereas such comparative information has been critical to advance an understanding of pharmaceutical hazards and risks in urban ecosystems, studies of medicines with fish and other ecotoxicological models are reciprocally benefiting basic and translational efforts, advancing comparative mechanistic toxicology, and providing robust comparative bridges for integrating conservation and toxicology.

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