

Recent advances on the toxicological and ecotoxicological effect of natural products and its derivatives (RATEENPD-2021), Food and Chemical Toxicology (Elsevier), period 2020-2021.

Special Issue Information

Dear Colleagues,

Now is open the Special Issue, **Recent advances on the toxicological and ecotoxicological effect of natural products and its derivatives in Food and Chemical Toxicology**, which will cover multidisciplinary areas. In this regard, we encourage you to contribute an original research paper, a short communication, or a focused review to this issue. Provided below is some information that you may find useful in your consideration of this invitation.

Taking the experience with three last special issues at this journal (RANPRTE, vol. 140, 2020, 111308; X-ISNPCA Chillan Chile, vol. 140, 2020, 111216; and IX-ISNPCA-Termas de Chillan, Chillan, Chile, vol. 109, part 2, 2017, 817-819); This SI aims to collect and disseminate some of the most significant and recent contributions in the use of natural compounds and derivatives to reduce the risk of developing inflammatory and oxidant diseases such as cancer and viral diseases including Covid-19 as well as expanding the focus on environmental toxic agents and their mitigation. Traditionally, natural products are bioactive compounds that have been used in the prevention and treatment of various human diseases in different cultures.

During the last ten years, most of them have been reported to have a variety of interesting and significant biological properties, such as analgesic, anti-allodynic, anti-diabetic, anti-oxidant, anti-parasitic, antimicrobial, anti-viral, anti-atherogenic, anti-inflammatory, anti-proliferative, anti-tumor, growth-stimulating activities, as well as cardio and neuro-protective activities. However, our focus is to emphasize the studies of their anti-cancer capacity, through the potential modulation of cancer initiation and growth, cellular differentiation, apoptosis and autophagy, angiogenesis, and metastatic dissemination. Besides these capacities, the use of natural compounds and derivatives represent one of the most promising strategies to treat the upsurging viral diseases such as Covid-19 in a contemporary situation. More recently, the corona viral epidemic raised the issue of developing effective antiviral agents at the earliest to prevent further losses. Natural products have always played a crucial role in the drug development process against various diseases, which resulted in the screening of such agents to combat emergent mutants of the corona virus. Although inhibition of viral replication is often considered as a general mechanism for antiviral activity of most of the natural products, studies have shown that some natural products can interact with key viral proteins that are associated with virulence. In this context, some of the natural products have antiviral activity in the nanomolar concentration (e.g., lycorine, homoharringtonine, silvestrol, ouabain, tylophorine, and 7-methoxycryptopleurine) and could lead for further functional food and drug development.

Also, a good number of natural products with anti-cancer activity can be the major constituents of some common dietary supplements, which can be exploited to improve the immunity of the general population in these unprecedented times. Scientific studies have established an inverse relationship between cancer and the ingestion of dietary phytoconstituents (phytochemicals) in the form of fruits, vegetables, and botanical herbs. On the other hand, phytoconstituents (anti-mutagenic, anti-genotoxic, and anti-carcinogenic) which, if included in the diet, can prevent the harmful effects of environmental pollutants. The connection between protecting the natural environment and safeguarding human health has been the central focus of research for identifying and regulating environmental toxic substances to reduce harmful human exposures.

The effect of various environmental exposures, such as toxic chemicals, air pollution, and biological agents on the human body, is commonly perceived as the global challenge in environmental health. There is burgeoning information leading to the intriguing concern about metabolic disorders such as cancer, rising viral infections, as well as environmental pollutants which have created serious threats in the last couple of decades causing serious health damage as well as claiming the lives of thousands of human beings. Therefore, this special issue aims to integrate the contemporary issues of carcinogenic contaminants in the environment coupled with the references to relevant studies which will enlighten readers studying nutrition, food chemistry, environmental chemistry, synthesis and hemi-synthesis of organic molecules, toxicology, botany, and ecology about environmental toxins and help them understand specific dietary measures known to reduce the toxic impact. This special issue will highlight the recent advances in the application of plants (and their bioactive principles) and their products with special emphasis on the toxicology aspects as well as it would pave the way to explore the opportunities and challenges ahead for anti-cancer, anti-viral, and mitigation of pollutants.

Topics:

1. The toxicological and ecotoxicological effect of natural products and derivatives.
2. New natural compounds and derivatives as anticancer agents (toxicological and ecotoxicological effects).
2. Use of natural compounds and derivatives as anti-inflammatory agents in cancer and/or viral infections.
3. Natural products and derivatives in oxidative stress associated with cancer.
4. Anti-cancer molecular mechanism implicated of natural products and derivatives.
5. Effects of natural products and derivatives on Covid-19 and possible future uses for anti-viral studies.

6. Effects of natural product and derivatives in mitigating the natural environmental toxic substances for food safety and human well-being.

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