Perspective

iMedPub Journals
www.imedpub.com

American Journal of Phytomedicine and Clinical Therapeutics
ISSN 2321-2748

2022
Vol.10 No.12:167

Phytotoxicity Data are to be More Available and Effective in the Hazard Assessment Process

Shintaro Nemot*

Department of Cardiology, Japan Community Healthcare Organization Osaka Hospital, Osaka, Japan
***Corresponding author:** Shintaro Nemoto, Department of Cardiology, Japan Community Healthcare Organization Osaka Hospital, Osaka, Japan.

E-mail: uehara@gmail.com

Received date: November 30, 2022, Manuscript No. IPAPCT-22-15653; **Editor assigned date:** December 02, 2022, PreQC No. IPAPCT-22-15653 (PQ); **Reviewed date:** December 14, 2022, QC No. IPAPCT-22-15653; **Revised date:** December 24, 2022, Manuscript No. IPAPCT-22-15653 (R); **Published date:** December 30, 2022, DOI: 10.36648/2321-2748.10.12.167

Citation: Nemoto S (2022) Phytotoxicity Data are to be More Available and Effective in the Hazard Assessment Process. Am J Phytomed Clin Ther Vol.10.No.12:167

Description

Phytotoxicity data for aquatic plants have served a relatively minor role in regulatory decisions concerning the environmental hazard of most potential contaminants. A variety of phytotoxicity tests have been conducted with freshwater green algae, duckweed, blue-green algae, diatoms and rooted macrophytes (whole plants and seeds). Several test methods have been standardized for microalgae which are used primarily with chemicals, effluents, contaminated sediment elutriate and hazardous waste leachates. Current scientific understanding concerning the phytotoxic effects of these contaminants is based mostly on results for a few green algae. The greatest limitation of these results is their uncertain environmental relevance due to the large interspecific variation in response of standard algal test species and the unrealistic experimental test conditions. Results of the few field validation toxicity tests conducted to resolve this uncertainty have been chemical-specific and unpredictable.

Chemical Postevolution

To create a drug, nature's blueprints often have to be improved through semisynthesis or total synthesis (chemical postevolution). Selected contributions from industrial and academic groups highlight the arduous but rewarding path from natural products to drugs. Principle modification types for natural products are discussed herein, such as decoration, substitution, and degradation. The biological, chemical, and socioeconomic environments of antibacterial research are dealt with in context. Natural products, many from soil organisms, have provided the majority of lead structures for marketed anti-infectives. Surprisingly, numerous “old” classes of antibacterial natural products have never been intensively explored by medicinal chemists. Nevertheless, research on antibacterial natural products is flagging. Apparently, the “old fashioned” natural products no longer fit into modern drug discovery. The handling of natural products is cumbersome, requiring nonstandardized workflows and extended timelines. Revisiting natural products with modern chemistry and target-finding tools from biology (reversed genomics) is one option for their revival.

Organic Synthesis

Higher plants, many of which are threatened with extinction, are used as sources of pharmaceuticals and as ingredients of traditional medicines and are of value in new drug discovery. Artemisinin, taxol and camptothecin are examples of natural products which are undergoing clinical and commercial development. Several natural products isolated from plants used in traditional medicine have potent antiplasmodial action in vitro and represent potential sources of new antimalarial drugs. Plant biotechnology offers the possibility of improved production methods of cultivated medicinal plants as well as alternative approaches to the production of natural products for the preparation of pharmaceuticals.The advent of organic synthesis and the understanding of the molecule as they occurred in the nineteenth century and were refined in the twentieth century constitute two of the most profound scientific developments of all time. These discoveries set in motion a revolution that shaped the landscape of the molecular sciences and changed the world. Organic synthesis played a major role in this revolution through its ability to construct the molecules of the living world and others like them whose primary element is carbon. Although the early beginnings of organic synthesis came about serendipitously, organic chemists quickly recognized its potential and moved decisively to advance and exploit it in myriad ways for the benefit of mankind. Indeed, from the early days of the synthesis of urea and the construction of the first carbon–carbon bond, the art of organic synthesis improved to impressively high levels of sophistication. Through its practice, today chemists can synthesize organic molecules—natural and designed—of all types of structural motifs and for all intents and purposes. The endeavor of constructing natural products—the organic molecules of nature—is justly called both a creative art and an exact science. Often called simply total synthesis, the replication of nature's molecules in the laboratory reflects and symbolizes the state of the art of synthesis in general. In the last few decades a surge in total synthesis endeavors around the world led to a remarkable collection of achievements that covers a wide ranging landscape of molecular complexity and diversity. In this article, we present highlights of some of our contributions in the field of total synthesis of natural products of biological and medicinal importance. For perspective, we also provide a

listing of selected examples of additional natural products synthesized in other laboratories around the world over the last few years.