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Exploration of new reactivities towards future sustainability

Chao-Jun Li

McGill University, Canada

The efficient making of new molecules is central to any new product in the pharmaceutical, materials science, microelectronics, and biotech industries. On the other hand, chemical manufacturing and chemical products have also affected us adversely from personal, local, national, and international scales. As a new philosophy over the last two decades, Green Chemistry through the 12 principles of green chemistry has emerged to develop the next generation of chemical science and technologies, as well as chemical products to meet such challenges in a proactive manner both environmentally and economically. Exploration of new chemical reactivities towards a sustainable future has been a long-term objective of our laboratory. We have explored various unconventional chemical reactivities that can potentially simplify synthesis, decrease overall waste and maximize resource utilization. Within the last decade, we have studied the development of various unconventional methodologies directed at increasing efficiency for multi-step chemical synthesis. Many of these new reactions can also be used to functionalize biomass directly.

cj.li@mcgill.ca

Green Chemistry in food processing industries and new products

Edna Regina Amante

Federal University of Santa Catarina, Brazil

The research Group of Cleaner Technologies in Food Processing was created in 1999 in the Federal University of Santa Catarina, south of Brazil, and since this time introduces the concept of green chemistry in graduate, post-graduate and in food industrial projects of partnerships. In this work will be presented the experience of the research group in studies of rice, heart of palm, cassava, poultry, fish and others food industrial sectors. A sequence of operation was suggested to study the economical, environmental, technical and social viability of different suggestions to raw materials valorization and wastes minimization. Through this simple proceeding it is possible to create options to minimize the environmental pollution charge from food industries. The mathematical model proposed include several systems that can be compared and discussed for each industry or group of industries according their characteristics and reality. At the final of the proposal it is possible to take a decision adequate for each one.

e.amante@ufsc.br

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