

Preface

This Special Topic issue on green chemistry pursues the same objectives as the Special Topic issue published in July 2000 and can be considered as its continuation. The articles have been selected (with great difficulty) from the massive and valuable scientific contributions on green chemistry by numerous professors and researchers during the 1st International IUPAC Conference on Green-Sustainable Chemistry held 10–15 September 2006 (for more details on the conference, see *Chemistry International*, Vol. 29, No. 3, 2007).

The wide selection of topics was chosen with the intent to attract industrial researchers and representatives, colleagues from universities, as well as politicians and students who are interested in green and sustainable chemistry.

The week-long conference was divided into five topics, each of which included several subtopics. This special issue covers the following topics discussed during the conference:

- benign syntheses routes (heterogeneous catalysis, new reagents, and catalysis for degradation of pollutants);
- benign process technology (microwave technology, photochemistry, new regulation devices);
- use of renewable sources (starch, cellulose, sugar, new detergents, biomass technology); and
- future green energy sources (hydrogen technology, fuel cell technology, biodiesel).

All the articles reported in this issue point out a general need for novel green processes which comes from a new paradigm in process and product evaluation that must include environmental and health issues (see *Chemistry International*, Vol. 29, No. 5, 2007). In order to reach this objective, one priority should be to push for more basic research on chemical reactions related to green chemistry, where our knowledge is far from completion.

In recent times, in fact, the difference between sustainable chemistry and green chemistry is becoming more evident. Sustainable chemistry envisages an industrial involvement and promotion with the aim of achieving fewer pollutant processes and more valuable products, maintaining, at the same time, profits. Whereas green chemistry is more innovative because it is not necessarily connected to profits, it involves fundamental aspects and does not aim automatically at an industrial process. There is a great need to create a new type of chemistry focused on a new production system and utilization of chemical derivatives, in order to prepare the younger generation to reach a greener future. Following this scenario, this special issue has been planned with the aim of extending the knowledge on green chemistry, not disregarding, however, the industrial interest.

Nowadays, globalization (induced by many factors such as industrial development) pushes the chemistry community to adopt ethical issues. In this respect, green chemistry can achieve, better than sustainable chemistry, the approval of society by teaching students to be confident in science and at the same time by convincing people that it is possible to achieve technological development respecting and taking care of the environment in which we live. In order to realize these objectives, it is important that education and fundamental research are strictly connected, so that democracy and development can also grow and progress side by side. In my personal experience I think that the young generation is very interested and passionate about green chemistry. An example is dott. Fabio Aricò (postdoctorate fellow in my group) who helped me through the organization of the IUPAC conference and the preparation of this special issue with enthusiasm and passion.

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