EDITORIAL

Organophosphorus Compounds, Organosulfur Compounds, Stereochemistry, Stereogenic Center, Mechanism, Synthesis, Asymmetric Reactions–Part 1

The first part of the special Current Green Chemistry issue which you are keeping just in your hands contains 3 papers whose content is related to the title of the issue. The first manuscript co-authored by Prof. Michaela Gulea and Dr. Morgan Donnard presents progress in the synthesis of organic thiocyanates (OTC) over the past five years (from the end of 2015 to mid-2019). It is an update to the tutorial review published in the Chemical Society Reviews in 2016. Both reviews show that this topic, despite that the thiocyanate functional group has been known for decades, is still developing dynamically. This results in regular and often appearing new synthetic methodologies. The authors attempt to show sustainable aspects of the presented synthetic protocols related with thiocyanation or sulfur-cyanation. On 39 schemes present in the content, you will find very well balanced information regarding new synthetic protocols devoted to the reactions involving thiocyanation and reactions involving S-cyanation. The first part is subsequently divided into two subsections, which describe reactions with preservation of the SCN group and the procedures in which transformations of the SCN group take place. The second part devoted to reactions based on S-cyanation presents three protocols used to convert disulphide or thiol into the corresponding SCN derivatives.

The second paper co-authored by Prof. Lenardao and his colleagues presents Deep Eutectic Solvents (DES) as an alternative medium for the preparation of organosulfur compounds. This manuscript constitutes the first, comprehensive collection of synthetic procedures in which DES serve as a “green alternative” for the Volatile Organic Compounds (VOCs) and traditional ionic liquids (ILs), more or less commonly used as the reaction medium. A brief presentation of the twenty years old story of this solvent and its basic physicochemical properties which allow their use as a new reaction medium open this manuscript. This introduction is followed by sequential discussions on the use of DES as a reaction medium in procedures leading to a rich family of organosulfur derivatives based on the six general reactions (condensation, cyclization, ring-opening, C-S bond formation, one-pot reactions, C-H bond activation). For a few procedures mechanistic proposals complement experimental details.

The third manuscript, co-authored by Prof. Uchiyama and his students, is an original article describing their successful attempts to develop procedures leading to a fluorescence fluoride ion sensor. The ability to detect fluoride ion based on this procedure is due to the colour change of N,N-bis(trimethylsilyl)-9-aminoanthracene, which under ultraviolet showed blue fluorescence originated from the anthracene skeleton due to orthogonal relation between anthracene skeleton and bis(trimethylsilyl)amino group, and 9-aminoanthracene, which shows green fluorescence due to conjugation that exists between the anthracene and the amino group.

Dr. Jozef Drabowicz
Guest Editor
Department of Chemistry
Jan Długosz University in Częstochowa, Armii Krajowej Ave. 13/15, 42-200 Częstochowa
Poland and
Division of Organic Chemistry
Centre of Molecular and Macromolecular Studies
Polish Academy of Sciences
Sienkiewicza 112, 90-363 Łódź
Poland
E-mail: drabow@gmail.com