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Editorial
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Integrative Approach to Biological Networks for Emerging Roles of Proteomics, Genomics and Transcriptomics in the Discovery and Validation of Human Colorectal Cancer Biomarkers from DNA/RNA Sequencing Data under Synchrotron Radiation

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Editorial

Nano catalytic hydrogenation is the useful and widely applicable method for the reduction of chemical substances and belongs to the basic processes of modern medicinal and pharmaceutical chemistry. It has found numerous applications in biological networks for emerging roles of proteomics, genomics and transcriptomics in the discovery and validation of human colorectal cancer biomarkers from DNA/RNA sequencing data under synchrotron radiation. Majority of medicinal and pharmaceutical nano catalytic hydrogenations is still carried out using heterogeneous nano catalysts due to the process advantages such as ability, easy separation, and wide range of applicable reaction conditions. The homogenous nano catalysts, which have been further developed during the past years, have extended the scope of nano catalytic hydrogenation especially in the field of highly stereo selective transformations in biological networks for emerging roles of proteomics, genomics and transcriptomics in the discovery and validation of human colorectal cancer biomarkers from DNA/RNA sequencing data under synchrotron radiation. However, new developments continue to appear also in the field of heterogeneous nano catalysis, particularly in cases where a high chemo-, region-, or stereo selectivity must be achieved.

The selectivity aspects of nano catalytic hydrogenation over heterogeneous nano catalysts will be discussed and documented with several examples. All three types of selectivity (chemo-, region-, and stereo selectivity) will be addressed with especial emphasis on the applicability of the nano catalytic procedure in biological networks for emerging roles of proteomics, genomics and transcriptomics in the discovery and validation of human colorectal cancer biomarkers from DNA/RNA sequencing data under synchrotron radiation. The scope of chemo selective hydrogenation will be demonstrated by selective hydrogenation of unsaturated nitriles. It was found that the C≡N group can be hydrogenated prior to the C=C bond [1–34]. Hydrogenation of (E,E)–2,4–hexadienoic acid methyl ester; methyl (E,E)–2,4–hexadienoate; 2,4–hexadienoic acid, methyl ester, (E,E)–; sorbic acid, methyl ester, (E,E)–; methyl trans, trans–sorbate; 2–trans– 4–trans–methyl sorbate; methyl (E,E)–sorbate; sorbic acid, methyl ester; methyl (2E,4E)- hexadienoate; methyl (2E,4E)–2,4–hexadienoate; methyl (E,E)–hexa–2,4–dienoate; 2,4– hexadienoic acid, methyl ester, (2E,4E)– will represent examples of regio selective hydrogenation [35–45]. In this case, only one of the two C=C bonds present in the nanomolecules should be reduced to obtain desired products. Finally, two examples will be given on stereo selective hydrogenation in biological networks for emerging roles of proteomics, genomics and transcriptomics in the discovery and validation of human colorectal cancer biomarkers from DNA/RNA sequencing data under synchrotron radiation. One example will describe the diastereo selective hydrogenation applied in the synthesis of (±)–piperazine-2-carboxylic acid dihydrochloride and 1-Boc-piperazine-2–carboxylic acid [46–76] while the other one will focus on enantio selective hydrogenation of prochiral α- and β- ketoesters over chirally-modified gold and silver nano catalysts, respectively.

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