

Preface

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Chemistry of the iminium and imine functional groups

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Iminium ions and imines range among the most important functional groups of organic chemistry. Sometimes regarded merely as synthetic equivalents of the carbonyl group, molecules containing these functional groups offer a good deal of chemistry in their own right.

This issue brings a collection of 11 articles relating to oral or poster presentations given at the ImSaT-12 conference, held from September 14 to 17, 2015 in Goslar, Germany. It was the 12th meeting in a biennial conference series dealing with the chemistry of iminium salts, imines and related compounds. Perfectly organized by Andreas Schmidt (TU Clausthal), this meeting was again a fine opportunity for experienced researchers and postgraduates alike to share and discuss recent results.

As the front cover of this issue already indicates, the contributions cover several different topics. The native iminium or imine functional groups are not immediately obvious from these illustrations, but in some of the papers they play a role as reaction intermediates, e.g. in enamine and enamine chemistry, or with in-situ prepared reagents. In other papers, the iminium or imine group is a structural part of a larger functional group (for example, amidinium, cyclic haloamidinium, guanidinium, cyclic amidines) or an N-heteroaromatic ring system such as the imidazolium ring. Some related functional group entities, namely α -aminonitriles and mesoionic sydnones, complement this issue.

J. Svete and colleagues (Ljubljana) have observed that different and often competing reaction channels are available to the reaction of N-protected α,β -didehydro- β -arylalanine esters and hydrazine hydrate. B. Stanovnik and coworkers (Ljubljana) have synthesized new functionally substituted fumarates from acyclic enamines and dimethyl acetylenedicarboxylate; these adducts may serve as precursors for the synthesis of functionalized N-heterocycles. Enamine chemistry is involved in the one-pot consecutive

three- or four-component reactions investigated by T. J. J. Müller and his coworkers (Düsseldorf); they combined a Sonogashira synthesis of alkynones with the Bagley–Bohlmann–Rahtz synthesis to prepare a series of differently substituted 3-ethoxycarbonylpyridines. T. Opatz and coworkers (Mainz) have developed a novel approach to 2-phenyl- and 2,6-diphenylpyridine in which deprotonated α -aminonitriles, prepared by a Strecker reaction, play a key role. H. Hartmann and C. Heichert (Dresden) present a collection of new methine dyes absorbing in the red and near infrared spectral region, which are easily prepared from aromatic and heteroaromatic iminium salts or aldehydes using Vilsmeier formylation reactions.

G. Maas (Ulm) and coworkers have used an acetylenic amidinium salt to prepare conjugates of 1,2,3-triazoles and cyclic amidines, 1,3-oxazolines or 1,3-thiazolines, which can function as bidentate ligands in copper and nickel complexes. Two papers deal with guanidinium salts. W. Kantelehnner (Aalen) shows how ionic liquids consisting of hexaalkylguanidinium ions and complex anions with high molecular weight can be used to enhance the brightness and contrast of SEM photographs of cellulose fibers and other organic and inorganic materials. G. Maas (Ulm) reports on the multiple functionalization of N,N',N'' -triaminoguanidinium salts via sulfonate esters.

D. Kunz and B. Raible (Tübingen) write about the selective mono- and dichlorination of diimidazo[1,5-*b*:1',5'-*f*]pyridazinium salts and compare the solid-state structures of the products. R. Wilhelm and coworkers (Paderborn) present synthetic routes to new six- and seven-membered cyclic haloamidinium salts, a palladium(II) complex of which was evaluated as a catalyst in Suzuki–Miyaura aryl-aryl coupling reactions. Effective catalysts for the same reaction type, namely palladium complexes with formally anionic *N*-phenylsydnone or *O*-ethoxy-*N*-phenylsydnone ligands, are presented by A. Schmidt and his coworkers.

In summary, the contributions to this issue spotlight some of the many facets of iminium, imine and related functional groups – as reagents or reaction intermediates in synthesis, or incorporated in target compounds with various properties and uses.

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