Chemistry of Iminium Salts and Related Compounds

The iminium function is an important functional group in organic synthesis. As synthetic building blocks, iminium salts represent activated, masked carbonyl coumpunds. Due to its enhanced electrophilic character, the iminium function usually reacts easily with a wide range of nucleophiles. α,β-Unsaturated iminium salts tend to be more reactive than the corresponding carbonyl compunds in the same kind of transformations, e. g. cycloaddition and conjugate addition. Several well known named reactions include iminium salts as intermediates, for example the Vilsmaier-Haack and the Mannich reactions. Recently reported "organocatalytic" aldol, Diels-Alder, and other reactions rest on equilibria between iminium salts and carbonyl compunds plus sec-amines. Iminium functions play an important role in the synthesis and properties of polymethine dyes. Cantionic heteroaromatic systems, such as pyridinium and isothiazolium systems, also contain an iminium moiety, the typical reactivity of which can be exploited for various manipulations of these ring systems. By simple transformations, iminium salts are closely related to imines and enamines.

The rich chemistry of iminium salts and related compounds furnished the background of the 6^{th} Conference on Iminium Salts (ImSaT-6) which took place on September 16 – 18, 2003, at Stimpfach-Rechenberg (Germany). The sixteen contributions to this issue of the journal were provided by speakers of the conference. It is hoped that these articles convey a convincing picture of the usefulness and many facets of iminium salts and the relatives.

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