(PDC) is used as a mild oxidizing agent. Pyridine can also form coordination compounds with various Lewis acids. For example, sulfur trioxide pyridinium complex ($Py{\cdot}SO_3$) is employed as a mild sulfonating agent. The lone-pair electrons of pyridine nitrogen can react with transition metals to form complex ions such as in **25**. The complex ion pyridinium chlorochromate (PCC) is an oxidizing agent for converting alcohols to aldehydes and ketones. Under mild conditions, pyridine derivatives can be quarternized with alkyl halides by a S_N2 reaction, and the resulting *N*-alkyl pyridinium compounds are used as versatile synthetic intermediates or used as final products. Later on in this section, the Zincke reaction and its applications in the medicinal chemistry will be discussed. *N*-Acylpyridinium salts can also be generated *in situ* by a reaction of pyridine with an acyl halide. Quaternary salts of pyridines and related compounds have been reviewed.[13] Several chiral *N*-alkylpyridinium and related salts such as **26–30** have been studied as electrophiles for asymmetric nucleophilic addition reactions.[14]