

NEW METHOD FOR THE PREPARATION OF N-OXIDES
OF AROMATIC NITROGENOUS HETEROCYCLES

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UDC 547.821.831.07

It is well known that the N-oxides of pyridines, quinolines, and other nitrogen-containing aromatic heterocycles are obtained by the oxidation of the bases by various peracids. We have shown that the hydroperoxide-molybdenum salt oxidative system recently [1] proposed for the epoxidation of olefins is not only a superb reagent for preparing various N-oxides but also has a number of advantages over peracids. For example, the oxidation of pyridine with tert-amyl hydroperoxide (TAHP) in the presence of MoCl_5 proceeds more rapidly than the oxidation with peracids, and the yields of N-oxides are close to quantitative. An advantage of the proposed reagent is shown in the case of the oxidation of acridine, the yield of the N-oxide of which reaches 90%, while the yield when perbenzoic acid is used does not exceed 50%, even after prolonged reaction [2]. The melting points in degrees centigrade and the percent yields of the N-oxides are indicated in parentheses: pyridine (65-67, 100), α -picoline (hydrochloride, 124-125, 100), β -picoline (33-34, 100), collidine (from -4 to -2, 100°), γ, γ' -dipyridyl (dioxide, 305-310, 100), methyl nicotinate (38-39, 90), diethyl 2,6-dimethylpyridine-3,5-dicarboxylate (108-110, 80), 4-acetamidopyridine (265-266, 40), quinoline (61-62, 100), quinaldine (hydrate, 77-78, 90), phenazine (dioxide, 202-204, 100), acridine (168-169, 100), and paverine (168-170, 85).

The method has some limitations. Thus, we could not oxidize α, α' -dipyridyl and o-phenanthroline. Satisfactory elementary analysis results were obtained for all of the compounds.

LITERATURE CITED

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Bashkirsk Branch, Institute of Chemistry, Academy of Sciences of the USSR, Ufa. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 7, p. 1005, July, 1971. Original article submitted November 30, 1970.

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