4-quinolone (III) in a yield of 50%; this is an isomer of the enamino ketone IIa with respect to the position of the methyl group, which is confirmed by the data of mass-spectral resolution and ^{13}C NMR; mp 142-143°C (from heptane); R_f 0.3 (Silufol, benzene—acetone, 4:1); mass spectrum: M_{found}^+ 255; M_{cal} 255. IR spectrum (Vaseline oil): 1630 (C═O conjugation), 1560 cm^{-1} (C═C conjugation). PMR spectrum (CCl_4): 0.97 (3H, d, CH_3), 4.46 (2H, d, $CH_2C_6H_5$), 7.20 ppm (3H, m, C_6H_5). Of the starting enamino ketone Ia, 40% is also separated out.

Under analogous conditions, there are obtained the following enamino ketones: IVa, yield 48%, mp 120-121°C (from heptane), M_{found}^+ 269, M_{cal} 269; IVb, yield 51%, mp 98-99°C (from heptane), M_{found}^+ 283, M_{cal} 283; IVc, yield 40%, M_{found}^+ 367, M_{cal} 367; IIb, yield 80%, M_{found}^+ 269, M_{cal} 269; IIc, yield 20%, M_{found}^+ 311, M_{cal} 311.

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NAME REACTIONS IN THE CHEMISTRY OF HETEROCYCLIC COMPOUNDS

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UDC 547.001.815(083)

After the publication of K. V. Vatsuro and G. L. Mishchenko's basic reference book (Moscow, Khimiya, 1976), a review of which by the most prominent specialist in the history of chemistry, G. V. Bykov, appeared in our journal (Khim. Geterotsikl. Soedin., No. 10, 1427-1430 (1977)), our attention was turned to the circumstance that the book contains relatively few name reactions bearing the names of Soviet organic chemists. Inasmuch as a second edition of this reference book and a French translation of it are being prepared, we carried out a poll of well-known heterocyclic chemists in order to clarify what reactions should bear the names of the scientists who discovered them (or made fruitful use of them).

Participants in the poll noted that in recent times new name reactions have, indeed, begun to appear less frequently than in the thirties, for which, at least in part, the low activity of colleagues and of the chemical community as a whole is to blame. There are no clear criteria for a name reaction, but an evaluation should take into consideration the novelty of the reaction (or method), the frequency with which it is mentioned in the literature and used by colleagues at other scientific centers, the breadth of application (generality), etc. Strict control of the creation of name reactions from the names of the scientists who discovered them would hardly be appropriate. Basically, the process is spontaneous and should hardly be referred to the competence of a Committee on Discovery and Invention. However, this process is not always free of subjectivity.

For more objective evaluation, the novelty and importance could be usefully shown by: publication of reviews of the annual progress in the field of heterocyclic chemistry, in which new, major results could be set out; publication of science history articles with an indication of the progress of the work of scientific schools and their influence on developments in the field; public discussions at all-union conferences and authoritative scientific colloquia of sections of the D. I. Mendeleev All-Union Chemical Society; information about new reactions in the pages of popular science journals (Priroda, Khimiya i Zhizn', Nauka i Zhizn'), participation of groups of competent scientists in specific discussions of the priority and importance of specific reactions; etc. New name reactions could be discussed also at sessions of editorial boards of specialized journals in organic chemistry. Here, one must keep in mind the time factor, but this does not preclude great effectiveness in specific cases when striking, unusual transformations are discovered.

Publishing the results of this preliminary poll, we hope that readers of the journal will contribute new suggestions as well as turn their attention to original and significant reactions or methods discovered or developed by our chemists, especially in the past decade.

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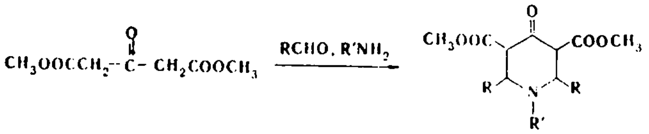
Below, we give some brief information concerning some reactions and methods (with the original references and references to the utilization of the reaction by other chemists) which we propose to call by the names of the Soviet scientists who discovered them. In addition to the material presented below, we consider it necessary to note that the acidic cleavage of cumene hydroperoxide mentioned in K. V. Vatsuro and G. L. Mishchenko's Handbook (p. 370) should be called the Khok—Udris reaction [see: Problems in the History of the Natural Sciences and Technology [in Russian], Issue 44, Moscow (1973), p. 37-41, and from the History of the Natural Sciences and Technology of the Baltic [in Russian], Vol. 1, Riga (1968), p. 203-216, where the history of the discovery of this important reaction is presented].

Also deserving of consideration is the catalytic synthesis of indoles, developed by N. N. Suvorov, the synthesis of pyrroles from oximes and acetylene by Trofimov, the rearrangement of phenothiazine compounds by Burmistrov, the thermal synthesis of substituted thiophenes with the reaction of arylhaloalkanes with elementary sulfur by Voronkov, and others.

We hope that an exchange of ideas on the problem brought up here will continue in the pages of our journal.

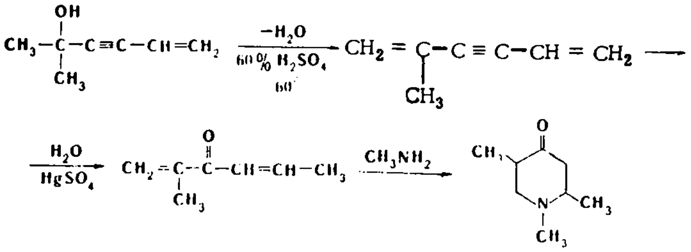
PETRENKO—KRITCHENKO REACTION [1-4]

The synthesis of γ-piperidones by the condensation of esters of acetonedicarboxylic acids with aldehydes and primary amines or ammonia



NAZAROV REACTION

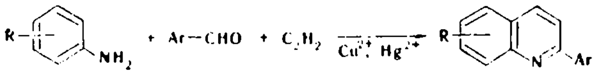
The synthesis of γ-piperidones from 5-methyl-1-hexen-3-yn-5-ol. The method is used industrially in the production of the analgesic "Promedol" with the preparation of 1,2,5-trimethyl-4-piperidone.



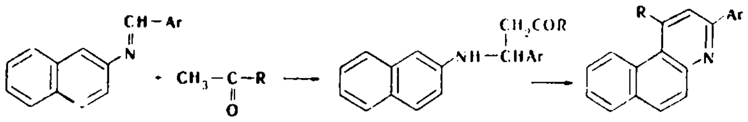
Various primary amines and also ammonium acetate are used in the cyclization step.

KOZLOV SYNTHESIS [11-13]

The preparation of 2-arylquinolines is effected by the condensation of primary aromatic amines, aromatic aldehydes, and acetylene in the presence of salts of copper or mercury. Derivatives of 2-arylbenzo(f)quinoline are obtained from 2-naphthylamines.

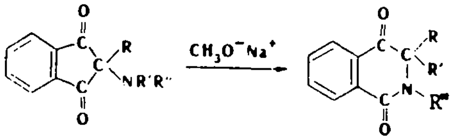


2,4-Disubstituted benzo(f)quinolines are obtained by condensation of an arylidene-2-naphthylamine with aliphatic, alicyclic, aromatic, or heterocyclic ketone in the presence of an acid salt. In the heterocyclization reaction, arylidene derivatives of aminoquinoline, benzo(f)quinoline, dibenzofuran, fluorene, and carbazole may participate with the formation of the corresponding polyheteroaromatic compounds.



WANAG REARRANGEMENT [14-17]

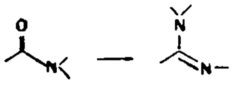
The isomerization of 2-amino-2-substituted-indan-1,3-diones to 1,4-dioxo-2-substituted-1,2,3,4-tetrahydroisoquinolines in the presence of sodium methoxide

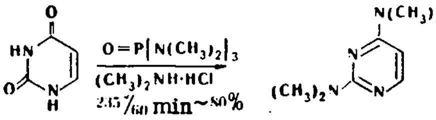


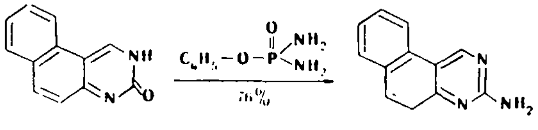
R = aryl; R' = H; R'' = aryl, benzyl

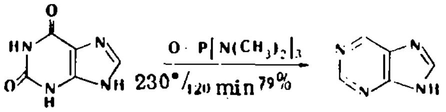
ZAV'YALOV REACTION [18-20]

The direct amination of amides to amidines and guanidines **under the action of the amides of phosphoric or phosphorous acid**



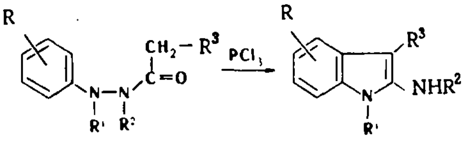


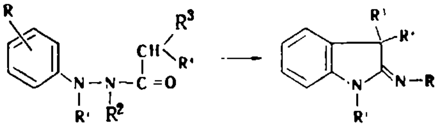




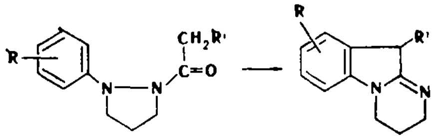
KOST REACTION [21-28]

The synthesis of 2-aminoindoles from the N-arylhydrazides of acids.



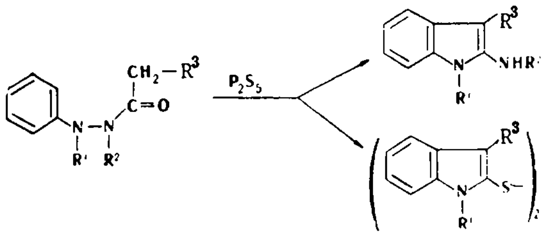


Reagent PCl_3, PBr_3, $POCl_3$, and the like (but not H^+).

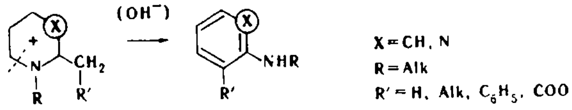


R^1, R^2, R^3, R^4 = alkyl, phenyl

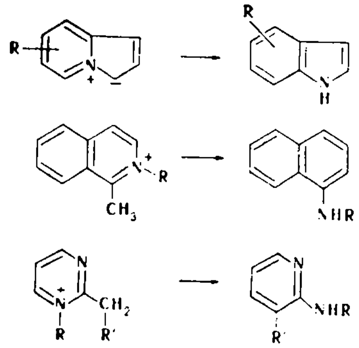
R = H, Cl, CH_3, CH_3O, Br etc.



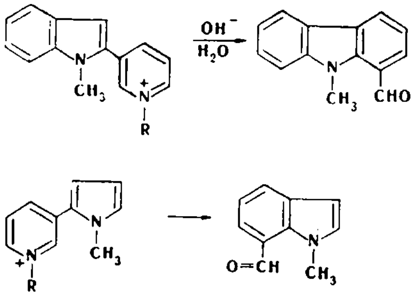
KOST—SAGITULLIN REARRANGEMENT [29-36]



Examples:

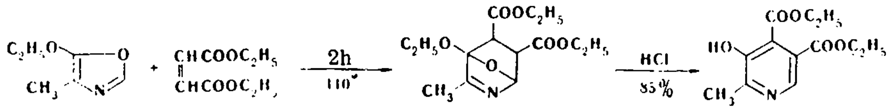


Extension of the method:



KONDRAT'EVA REACTION [37, 38]

The synthesis of pyridines by splitting of the adducts of a diene condensation with oxazoles:



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