# NEW SYNTHESISOF IMIDAZO[4,5-f]QUINOLINE DERIVATIVES

V. M. Pechenina, N. A. Mukhina,
V. G. Klimenko, V. V. Chistyakov,
and V. G. Granik

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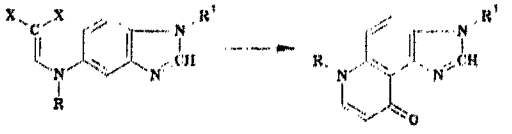
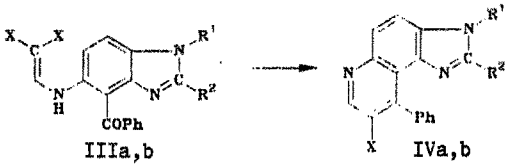
A method has been reported [1] for the synthesis of imidazo[4,5-f]quinolines by cyclization of 5(6)-aminobenzimidazole enamines(I) in the presence of polyphosphoric acid and phosphorus oxychloride. In particular the synthesis is recorded for compounds of the general formula II.



I II

We have shown that enamines of 5-amino-4-benzoylbenzimidazole (III) cyclize (with participation of the benzoyl carbonyl group) upon heating with polyphosphoric acid to form compounds with the structure IV.



IIIa,b IVa,b

a $R^1$=Ph, $R^2$=$CH_3$, X=COOEt; b $R^1$=Ph, $R^2$=H, X=COOEt

2-Methyl-3,9-diphenyl-8-carbethoxyimidazo[4,5-f]-quinoline (IVa) was obtained in 89% yield with mp 117-118°C. Mass spectrum, m/z (relative intensity, %): $M^+$ 407 (100), $[M-C_2H_4]^+$ 379 (28), $[M-C_2H_5]^+$ 378 (71), $[M-OC_2H_5]^+$ 362 (18), $[M-COOC_2H_4]^+$ 335 (14), $[M-COOC_2H_5]^+$ 334 (28). PMR Spectrum ($CF_3COOH$): 0.74 (t, $CH_3$), 2.30 (s, 2-$CH_3$), 3.95 (q, $OCH_2$), 7.34 (m, Ar), 7.82 (d, 4(5)-H), 8.29 (d, 5(4)-H), 9.49 ppm (s, 7-H).

3,9-Diphenyl-8-carbethoxyimidazo[4,5-f]quinoline (IVb) was obtained in 91% yield with mp 205°C. Mass spectrum, m/z (relative intensity, %): $M^+$ 393 (62), $[M-H]^+$ 392 (100), $[M-C_2H_4]^+$ 365 (17), $[M-C_2H_5]^+$ 364 (37), $[M-OC_2H_5]^+$ 348 (8), $[M-COOC_2H_4]^+$ 321 (4), $[M-COOC_2H_5]^+$ 320 (9). PMR Spectrum ($CF_3COOH$): 0.70 (t, $CH_3$), 3.92 (q, $OCH_2$), 7.38 (m, Ar), 8.12 (d, 5(4)-H), 8.40 (d, 4(5)-H), 8.99 (s, 2-H), 9.53 ppm (s, 7-H).

The IR spectra (paraffin mull) of IVa and IVb showed absorption bands for the ester carbonyl groups (1695 and 1684 $cm^{-1}$ correspondingly) and the absence of an NH absorption band.

Elemental analytical data for IVa, b was in agreement with that calculated.

## LITERATURE CITED

1. K. Kigasawa, M. Hiragi, K. Wakisaka, S. Yosiga, and M. Kusama, Japanese Patent 5,528,920, Ref. Zh. Khim., 40114 P (1981).

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