Chemistry of Heterocyclic Compounds, Vol. 37, No. 8, 2001

ACETYLATION OF 2-(2-FURYL)-1-METHYLNAPHTH[2,3-*d*]IMIDAZOLE

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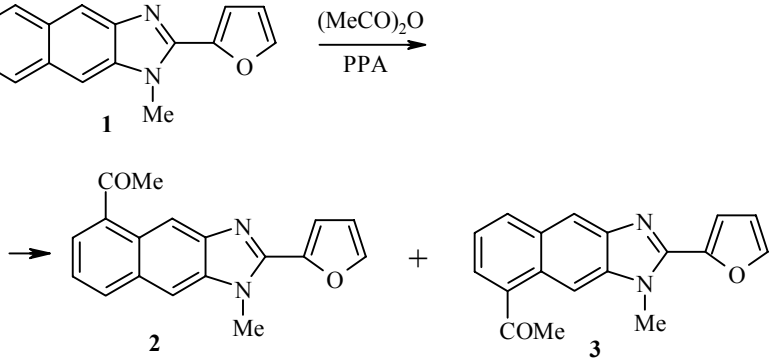
Keywords: 2-(2-furyl)-1-methylnaphth[2,3-*d*]imidazole, acetylation, regioorientation.

A characteristic feature of acylation in 2-furylimidazoles is the exclusive acetylation at $C_{(5')}$ of the furan ring [1, 2]. The reactivity of such bishetaryls depends significantly on the aromatic system fused to the imidazole ring. Greatest interest relative to the reaction orientation lies in the acetylation of 2-(2-furyl)-1-methylnaphth[2,3-*d*]imidazole (**1**). In contrast to other hetarylimidazole derivatives, the redistribution of electron density in **1** predetermines the substitution only in the naphthimidazole fragment. Isomeric acetyl derivatives **1** and **2** were obtained in this reaction and identified.



Thus, a mixture of 10 mmoles **1** and 50 mmoles acetic anhydride in 40 g polyphosphoric acid was stirred at 100°C for 6 h. Then, the reaction mixture was cooled, diluted with 200 ml cold water, and neutralized with 25% aq. NH_4OH. The product separated was extracted with chloroform (3 × 30 ml). The extract was dried over anhydrous $CaCl_2$, evaporated, and passed through an alumina column (20 cm, d = 2.5 cm) using chloroform as the eluent. The isomers were separated chromatographically.

5-Acetyl-2-(2-furyl)-1-methylnaphth[2,3-*d*]imidazole (2) was obtained in 62% yield; mp 181-182°C (heptane). ^{1}H NMR spectrum ($CDCl_3$), δ, ppm: 9.22 (1H, s, 4-H); 8.12 (1H, d, 6-H); 7.43 (1H, t, 7-H); 7.85 (1H, d, 8-H); 7.74 (1H, s, 9-H); 7.38 (1H, d, 3'-H); 6.64 (1H, q, 4'-H); 7.68 (1H, d, 5'-H); 4.17 (3H, s, N–CH_3); 2.78 (3H, s, CH_3). Found, %: C 73.5; N 9.6. $C_{18}H_{14}N_2O_2$. Calculated, %: C 74.5; N 9.6.

8-Acetyl-2-(2-furyl)-1-methylnaphth[2,3-*d*]imidazole (3) was obtained in 22% yield; mp 225-226°C (heptane). ^{1}H NMR spectrum ($CDCl_3$), δ, ppm: 9.02 (1H, s, 4-H); 8.18 (1H, t, 6-H); 7.40 (1H, d, 7-H); 8.02 (1H, d, 5-H); 8.12 (1H, s, 9-H); 7.36 (1H, d, 3'-H); 6.64 (1H, q, 4'-H); 7.68 (1H, d, 5'-H); 4.17 (3H, s, N–CH_3); 2.80 (3H, s, CH_3). Found, %: C 74.1; N 9.4. $C_{18}H_{14}N_2O_2$. Calculated, %: C 74.5; N 9.6.

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 0009-3122/01/3708-1042$25.00

This work was carried out with the financial support of the Russian Fund for Basic Research Grant No. 81135 Bel 2000.

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