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> LETTERS TO THE EDITOR

Reaction of N-(2,2-Diarylethyl)-N-methylamine Hydrobromides with Trifluoroacetic Acid

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Recently we have developed a procedure for preparing *N*-(2,2-diarylethyl)-*N*-methylamines **Ia** and **Ib** by the reaction of resorcinol or its derivatives with α -amino acetals [1]. To assess the possibility of selective N- or O-functionalization of such compounds, we studied the reactions of amine hydrobromides **Ia** and **Ib** with acetic and trifluoroacetic acids. Compounds **Ia** and **Ib** do not react with acetic acid, whereas prolonged heating of these substances with trifluoroacetic acid yields N-acylation products **IIa** and **IIb**. Their structure was confirmed by ¹H, ¹³C NMR and IR spectroscopy, and their composition was determined by elemental analysis.





I, **II**,
$$R = H$$
 (**a**); Me (**b**).

N-[2,2-Bis(2,4-dihydroxyphenyl)]ethyl-N-methyltrifluoroacetamide IIa. A mixture of 0.40 g of compound Ia and 10 ml of trifluoroacetic acid was refluxed for 3 days. Excess acid was removed in a vacuum, and the residue was treated with diethyl ether. The light yellow crystals thus obtained were separated and dried in a vacuum to give 0.35 g (85%) of compound IIa, mp 125°C. IR spectrum, v, cm⁻¹: 1615 (CH_{arom}), 1679 (C=O), 3347 (OH). ¹H NMR spectrum (CD₃OD), δ, ppm (J, Hz): 2.61 s, 2.64 s, 2.66 s (3H, NCH₃), 3.58 m (2H, CH₂N), 4.82 m (1H, CH), 6.26–6.44 m (4H, C^{1,5}H_{arom}), 6.87–6.94 m (2H, CH⁴H_{arom}). ¹³C NMR spectrum (acetone- d_6), δ_C , ppm: 34.23 (C⁹), 36.43 (C⁷), 53.08 (C⁸), 104.02 (C¹_{arom}), 107.92 (C_{arom}^5), 116.40 (C^{11}), 118.29 (C_{arom}^3), 130.70 (C_{arom}^4), 155.76, 156.67 (C_{arom}^6), 158.30 (C_{arom}^2), 161.29 (C¹⁰). Found, %: C 54.69; H 4.35; N 3.80. C₁₇H₁₆NO₅F₃. Calculated, %: C 54.98; H 4.31; N 3.77.

N-[2,2-Bis(2,4-dihydroxy-3-methylphenyl)]ethyl-*N*-methyltrifluoroacetamide IIb was prepared similarly by heating of 0.77 g of compound Ib and 10 ml of trifluoroacetic acid. Yield 0.40 g (50%), yellow crystals, mp 105°C. IR spectrum, v, cm⁻¹: 1614 (CH_{arom}), 1674 (C=O), 3342 (OH). ¹H NMR spectrum (D₂O), δ , ppm (*J*, Hz): 1.95 s, 1.99 s, 2.04 s, 2.05 s, 2.09 s, 2.11 s (6H, C_{arom}CH₃), 2.56 s, 2.60 s, 2.68 s (3H, NCH₃), 3.58 m (2H, CH₂N), 4.86 m (1H, CH), 6.25–6.88 m (4H, C^{4,5}H_{arom}). ¹³C NMR spectrum (CD₃OD), $\delta_{\rm C}$, ppm: 9.07, 9.88 (CH₃), 34.05 (C⁹), 37.09 (C⁷), 53.70 (C⁸), 108.37 (C¹_{arom}), 114.66 (C⁵_{arom}), 119.78 (C³_{arom}), 121.21 (C¹¹), 126.22 (C⁴_{arom}), 154.43, 153.52 (C⁶_{arom}), 156.38 (C²_{arom}), 162.28 (C¹⁰). Found, %: C 57.34; H 4.97; N 3.51. C₁₉H₂₀NO₅F₃. Calculated, %: C 57.14; H 5.01; N 3.50.

The ¹H NMR spectra were taken in D_2O and CD_3OD , and ¹³C NMR spectra, in $(CD_3)_2C=O$ and CD_3OD on a Bruker Avance-600 spectrometer (600 and 150 MHz, respectively).

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