

Short Note

4-Amino-*N*-(2-hydroxy-4-pentadecylbenzylidene)benzenesulfonamide

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Received: 10 September 2011 / Accepted: 29 September 2011 / Published: 13 October 2011

Abstract: 4-Amino-*N*-(2-hydroxy-4-pentadecylbenzylidene)benzenesulfonamide has been synthesized by reaction of 2-hydroxy-4-pentadecylbenzaldehyde with 4-aminobenzenesulfonamide in the presence of acetic acid in ethanol. The structure of this new compound was confirmed by elemental analysis, IR, ¹H-NMR, ¹³C-NMR and mass spectral analysis.

Keywords: 4-amino-*N*-(2-hydroxy-4-pentadecylbenzylidene)benzenesulfonamide; Schiff base; pentadecylbenzaldehyde

Schiff base (CH=N) compounds have received a considerable amount of attention from many researchers owing to their importance in exhibiting thermochromism and photochromism [1-3]. Aromatic Schiff bases possessing a long alkyl chain have received overwhelming attention due to their possibility to show liquid crystallinity properties such as smectic and nematic phases [4-7]. Thus, we report here another new derivative containing an pentadecyl chain, 4-amino-*N*-(2-hydroxy-4-pentadecylbenzylidene)benzenesulfonamide.

Experimental

Melting point was determined in open capillary and is uncorrected. FT-IR spectrum was recorded on a Nicolet Fourier Transform Infrared Spectrophotometer: Impact 410 (Nicolet Instrument Technologies, Inc. WI, USA). ¹H-NMR and ¹³C-NMR were obtained in CDCl₃ and DMSO-*d*₆ at 400 MHz for ¹H nuclei and 100 MHz for ¹³C nuclei (Bruker Company, Germany). All chemical shifts were reported in parts per million (ppm) using residual proton or carbon signal in deuterated solvents

as internal references. Mass spectrum was obtained using matrix-assisted laser desorption ionization mass spectrometry (MALDI-TOF) by using dithranol as a matrix. Elemental analysis (C, H, N and S) was performed on a Perkin Elmer 2400 analyzer. The purity of the compound was checked by TLC on silica gel and further purification was performed through column chromatography (silica gel, 60–120 mesh).

A mixture of 2-hydroxy-4-pentadecylbenzaldehyde (1.10 g, 0.003 mol) and 4-aminobenzenesulfonamide (0.57 g, 0.003 mol) in ethanol (25 mL) in the presence of glacial acetic acid was refluxed for 4h. After the completion of the reaction (TLC-monitoring), the reaction mixture was cooled down to room temperature and then poured into crushed ice. The precipitate was filtered, dried and recrystallized from absolute ethanol. The solid was further purified through column chromatography [silica, petroleum ether/ethyl acetate (70:30)], leading to compound **3** as yellow solid.

Yield: 0.90 g (84%).

Melting point: 196–198 °C.

MS: $m/z = 486.94 (M^+ + 1)$.

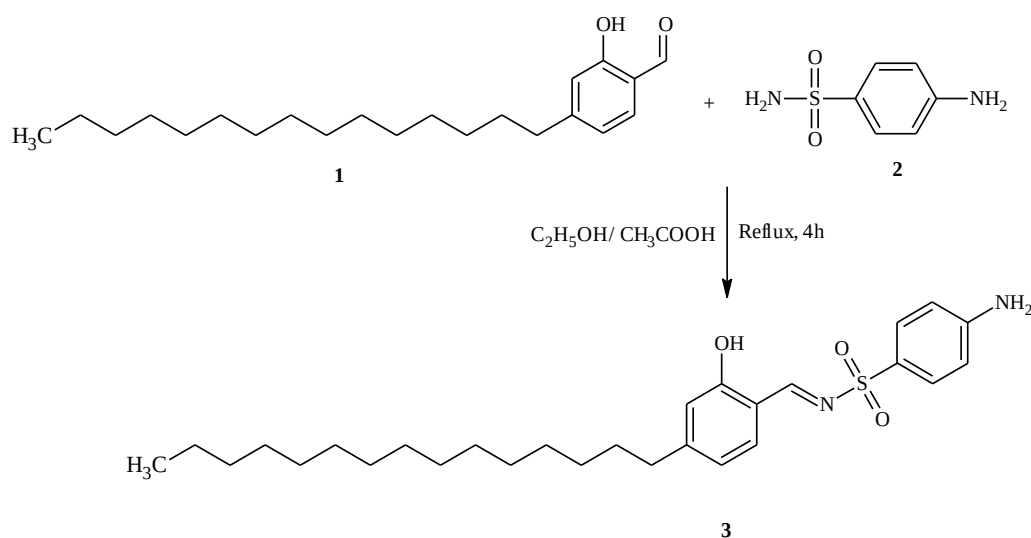
IR (KBr): $\nu_{\max}$ (cm⁻¹): 3324 (Ar-NH₂ str.), 3255 (O-H str.), 2954 (=C-H str.), 1610 (C=C str.), 1585 (C=N str.).

¹H-NMR (400 MHz, CDCl₃) δ ppm: 12.62 (s, 1H, OH), 8.50 (s, 1H, CH=N), 7.90 (d, $J = 7.9$ Hz, 2H, Ar-H), 7.22 (d, $J = 7.9$ Hz, 2H, Ar-H), 6.90 (s, 1H, Ar-H), 6.70 (d, $J = 7.7$ Hz, 2H, Ar-H), 4.80 (s, 2H, Ar-NH₂), 2.51 (t, $J = 7.6$ Hz, 2H, Ar-CH₂), 1.56–1.10 (m, 26H, (CH₂)₁₃), 0.85 (t, $J = 6.8$ Hz, 3H, CH₃).

¹³C-NMR (100 MHz, DMSO-*d*₆) δ ppm: 164.7, 160.3, 151.2, 149.4, 141.8, 132.5, 127.0, 121.6, 120.0, 119.7, 117.1, 116.5, 116.2, 31.2, 30.2, 30.1, 28.9, 28.8, 28.7, 28.6, 28.5, 22.0, 13.8.

Elemental analysis: Calculated for C₂₈H₄₂N₂O₃S: C, 69.10%; H, 8.70%; N, 5.76%; S, 6.59%; found: C, 69.69%; H, 9.32%; N, 5.93%; S, 6.60%.

Scheme 1. Synthesis of 4-amino-*N*-(2-hydroxy-4-pentadecylbenzylidene)benzenesulfonamide.



Acknowledgments

This work was supported by the Higher Education Research Promotion and National Research University Project of Thailand, Office of the Higher Education Commission (project no. AM1079B). The post doctoral fellowship grant from the Ratchadapisakesompote Endowment Fund, Chulalongkorn University (to G.N.) was gratefully acknowledged.

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