

Short Note

## 5-Pentadecyl-2-((p-tolylimino)methyl)phenol

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Received: 21 June 2013 / Accepted: 8 July 2013 / Published: 18 July 2013

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**Abstract:** 5-Pentadecyl-2-((p-tolylimino)methyl)phenol has been synthesized by reaction of 2-hydroxy-4-pentadecylbenzaldehyde with 4-amino-1-methyl-aniline in 1,4-dioxane under reflux. The structure of the synthesized compound was assigned on the basis of elemental analysis, UV, IR, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR and mass spectral data.

**Keywords:** 5-pentadecyl-2-((p-tolylimino)methyl)phenol; long chain; cardanol

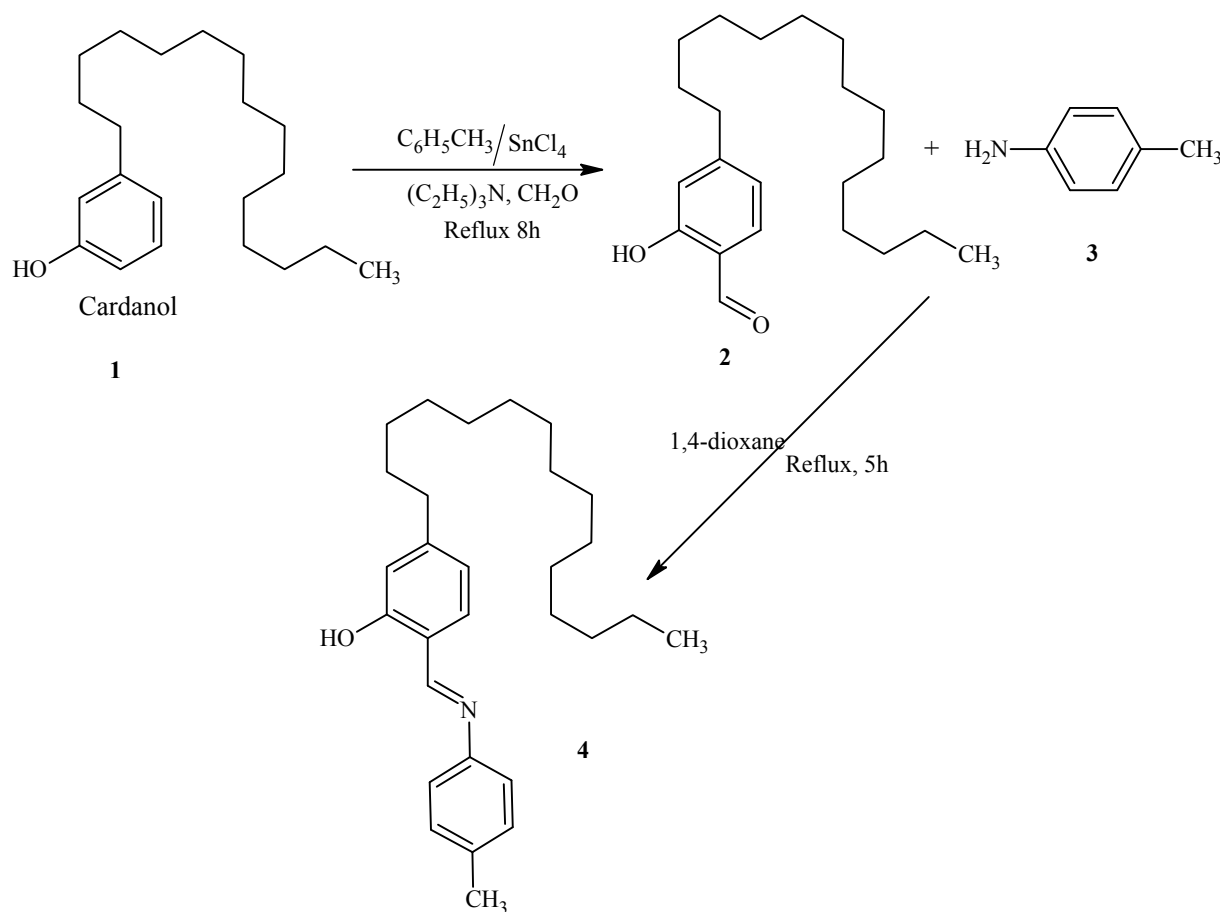
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### Introduction

Schiff bases are used as substrates in the preparation of a number of industrial and biologically active compounds. Schiff bases derived from various aromatic or heterocycles have been reported to possess cytotoxic [1], anticonvulsant [2], antiproliferative [3], antimicrobial [4], anticancer [5], and antifungal activities [6]. In view of these reports, in the present work we have synthesized the title compound.

### Results

2-Hydroxy-4-pentadecylbenzaldehyde [7] was prepared from cardanol (3-pentadecylphenol, contained, e.g., in Cashew nut shell liquid (CNSL)) by formylation, using a standard procedure [7]. The title compound was obtained in low yield (42%) by refluxing compound **2** with an equimolar amount of 4-amino-1-methyl-aniline in 1,4-dioxane for 5 hours. This new Schiff base was fully characterized by elemental analysis, UV, IR, MS, <sup>1</sup>H-NMR and <sup>13</sup>C-NMR data. The configuration at the imine unit was not investigated; compound **4** is arbitrarily shown in Z configuration in Scheme 1.

**Scheme 1.** Synthesis of 5-pentadecyl-2-((p-tolylimino)methyl)phenol.

## Experimental

Melting point was determined in open capillary and is uncorrected. Absorption spectrum was recorded in CHCl<sub>3</sub> by a Hewlett Packard-8453 spectrophotometer. FT-IR spectrum was recorded on a Nicolet Fourier Transform Infrared Spectrophotometer: Impact 410 (Nicolet Instrument Technologies, Inc. WI, USA). <sup>1</sup>H-NMR and <sup>13</sup>C-NMR were obtained in DMSO-*d*<sub>6</sub> at 500 MHz for <sup>1</sup>H nuclei and 125 MHz for <sup>13</sup>C 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 and N) 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).

2-Hydroxy-4-pentadecylbenzaldehyde **2** (1.66 g, 0.005 mol) in 1,4-dioxane (15 mL) and 4-amino-1-methylaniline **3** (0.53 g, 0.005 mol) was heated under reflux for 5 hours. The completion of the reaction was monitored by TLC. The reaction mixture was allowed to cool down to room temperature, and then poured onto ice cooled water with constant stirring. The precipitate was filtered, washed with water, dried and recrystallized from absolute ethanol. The resulting solid was further purified by silica column, using a gradient mixture of hexane/ethyl acetate (50:50) as an eluent to obtain **4**.

Color: light yellow solid.

Yield: 0.90 g (42%).

Melting point: 186–188 °C.

$\lambda_{\max}$  = 347 nm.

MS:  $m/z$  = 421.742 ( $M^+$ ).

IR (KBr):  $\nu_{\max}$  ( $\text{cm}^{-1}$ ): 3435 (O-H str.), 1618 (C=N str.), 2847 ((=C-H),w), 1598, 1577, 1561 ((C=C aromatic), asymm, s), 1463, 1438, (asymm), 1399 ((C=C aromatic), s, m), 1184 (s), 1037 (s), 820 ((aromatic, C-H para), asymm, s), 724, 653 ((aromatic,  $\delta$  C-H mono).

$^1\text{H-NMR}$  (500 MHz,  $\text{DMSO-}d_6$ )  $\delta$  ppm: 13.20 (s, 1H, OH), 8.88 (s, 1H, CH=N), 7.50 (d,  $J$  = 7.7 Hz, 1H, Ar-H), 7.29 (d,  $J$  = 7.8 Hz, 2H, Ar-H), 7.24 (d,  $J$  = 7.8 Hz, 2H, Ar-H), 6.79 (d,  $J$  = 7.7 Hz, 1H, Ar-H), 6.76 (s, 1H, Ar-H), 2.53 (t,  $J$  = 7.6 Hz, 2H, Ar-CH<sub>2</sub>), 2.32 (s, 3H, CH<sub>3</sub>), 1.57–1.13 (m, 26H, (CH<sub>2</sub>)<sub>13</sub>), 0.83 (t,  $J$  = 6.8 Hz, 3H, CH<sub>3</sub>).

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ )  $\delta$  ppm: 161.3, 149.3, 145.8, 143.4, 136.7, 132.0, 129.9, 120.9, 119.6, 116.9 (Aromatic carbons), 36.4, 36.8, 31.9, 30.9, 30.6, 29.7, 29.6, 29.5, 29.4, 29.3, 29.2, 29.0, 22.8, 21.6 (methylene carbons), 19.8 (Aromatic CH<sub>3</sub>), 14.1 (CH<sub>3</sub>).

Elemental analysis: Calculated for C<sub>29</sub>H<sub>43</sub>NO: C, 82.60%; H, 10.28%; N, 3.32%; found: C, 82.32%; H, 9.96%; N, 3.14%.

## 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. EN1250B). The post doctoral fellowship grant from the DST Fund, Johannesburg University was gratefully acknowledged.

## Conflict of Interest

The authors declare no conflict of interest.

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