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Short Note

4-[(Anthracen-9-ylmethylene)amino]-1,5-dimethyl-2-phenyl-1,2-dihydropyrazol-3-one

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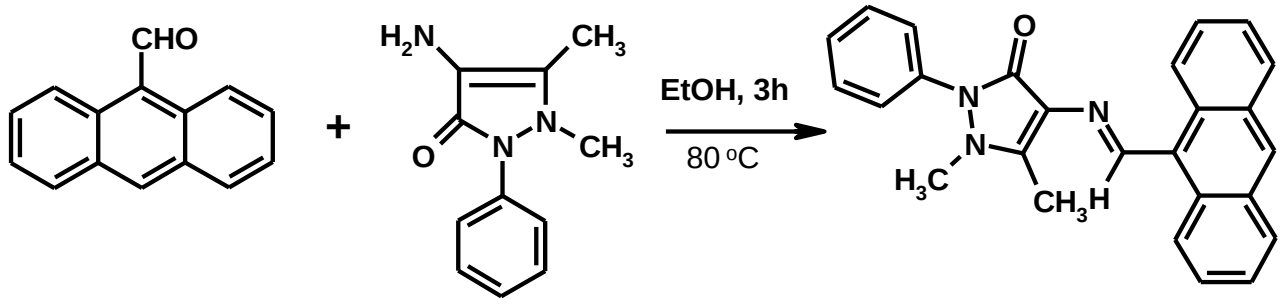
Abstract: The title compound, 4-[(anthracen-9-ylmethylene)amino]-1,5-dimethyl-2-phenyl-1,2-dihydropyrazol-3-one (**3**), was synthesized in high yield by reaction of anthracene-9-carbaldehyde and 4-aminoantipyrine in ethanol. The structure of this new compound was confirmed by elemental analysis, IR, ^{1}H NMR, ^{13}C NMR and GC-MS spectral data.

Keywords: Schiff base; anthracene aldehyde; 4-aminoantipyrine

Nitrogen-atom containing heterocyclic compounds are an important subset of the natural products that exhibit biological activities, including antitumor [1], antiamoebic [2], antimicrobial [3] and anti-inflammatory [4] activities. Pyrazol-3-one presents an interesting group of compounds, many of which possess widespread pharmacological properties such as analgesic, antipyretic, and antirheumatic activities [5]. These derivatives are also well known for their pronounced anti-inflammatory properties [6] and are used as potent antidiabetic agents [7] Pyrazol-3-one containing Schiff bases can show even increased biological activity [8]. Since the pyrazol-3-one Schiff base moiety seems to be a possible pharmacophore in various pharmacologically active agents, we decided to synthesize a new pyrazol-3-one containing a Schiff base unit by reaction of anthracene-9-carbaldehyde with 4-aminoantipyrine.

Figure 1. Synthesis of compound **3**.



(1) **(2)** **(3)**

Experimental

A mixture of anthracene-9-carbaldehyde (0.50 g, 0.0024 mol) and 4-aminoantipyrine (0.49 g, 0.0024 mol) in ethanol (15 mL) was heated for 3 h at 80 ℃. The reaction was monitored by TLC (chloroform/methanol, 9:1). The solid that separated from the cooled mixture was collected and recrystallized from a methanol/chloroform mixture (8:2) to give the title compound (**3**) as a yellow solid.

Yield: 87%; m.p. 231–232 ℃

GC-MS *m/z* (rel. int.%): 393 (68) $[M+1]^+$

IR (KBr) ν_{max} cm^{-1}: 3027 (Ar-H, stretch), 2874 (C-H), 1636 (C=O), 1580 (HC=N), 1138 (C-N)

^1H NMR (600 MHz, $CDCl_3$) (δ/ppm): 11.06 (s, $CH_{olefinic}$), 8.98 (d, *J* = 8.84 Hz, CH), 8.50 (d, *J* = 7.4 Hz, CH), 8.04 (dd, *J* = 7.6 Hz, CH), 7.50 (dd, *J* = 7.2 Hz, CH), 7.48 (s, CH), 7.56–7.51 (m, 5H, CH), 3.23 (s, CH_3), 2.19 (s, CH_3)

^{13}C NMR (150 MHz, $CDCl_3$) δ: 160.84, 157.70, 152.03, 134.75, 131.54, 130.45, 129.32, 129.01, 128.8, 127.11, 126.60, 125.64, 125.22, 124.62, 119.70, 35.78, 10.36

Anal. calc. for $C_{26}H_{21}N_3O$: C, 79.77, H, 5.41, N, 10.73. Found: C, 79.74, H, 5.38, N, 10.68.

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