

Short Note

## 3-Dimethylaminomethylene-4-phenyl-1,3-dihydro-2H-1,5-benzodiazepin-2-one

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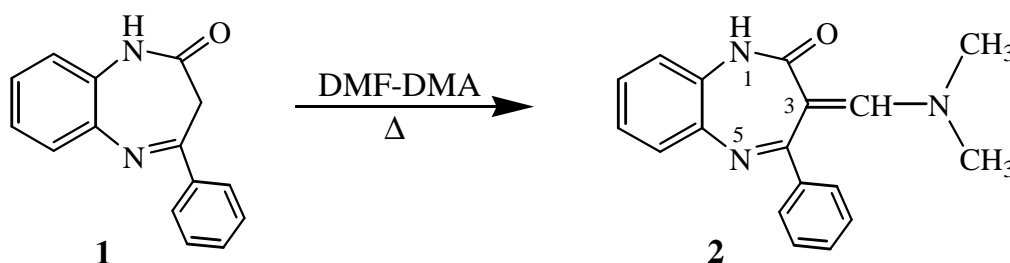
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In this paper, we describe a facile and efficient method to prepare compound **2**, which had been previously obtained by a Vilsmeier reaction using DMF/POCl<sub>3</sub> [1]. We found that employment of dimethylformamide-dimethylacetal (DMF-DMA) affords the title compound in better purity and higher yield.



A mixture of 0.47 g (1.98 mmol) of 4-phenyl-1,3-dihydro-2H-1,5-benzodiazepin-2-one **1** [2,3] in 4.5 ml of dimethylformamide-dimethylacetal (DMF-DMA) was stirred at 100 °C for 4 hours and then cooled to room temperature. Filtration and washing with a little cold diethyl ether gave 0.46 g (75%) of 3-dimethylaminomethylene-4-phenyl-1,3-dihydro-2H-1,5-benzodiazepin-2-one **2**. The product obtained was recrystallized from diethyl ether.

Melting point: 224-225 °C (Diethyl ether).

MS (m/z, %): 292 ([M+H]<sup>+</sup>, 100%).

<sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz), δ(ppm): 2.55 (s, 6H, (CH<sub>3</sub>)<sub>2</sub>N), 2.80 (s, 1H, NH), 7.40 (s, 1H, C=CH-N(CH<sub>3</sub>)<sub>2</sub>), 6.80-7.90 (m, 9H, H-Ar).

<sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz), δ(ppm): 43.50 (N(CH<sub>3</sub>)<sub>2</sub>), 98.02 (C-3), 121.47, 124.59, 127.34, 128.13, 128.67, 128.89, 130.65, 131.78, 141.86 (C-Ar), 151.18 (C=CH-N(CH<sub>3</sub>)<sub>2</sub>), 167.40 (C-4), 178.57 (C=O).

### References:

1. Solomko, Z.F.; Proshkina, V.N.; Bozhanova, N.Ya.; Loban, S.V.; Babichenko, L.N. Vilsmeier reaction with 4-phenyl-2,3-dihydro-1H-1,5-benzodiazepin-2-one. *Khim. Geterosikl. Soedin.* **1984**, 223.
2. Ried, W.; Stahlhofen, P. Über heterocyclische siebenringsysteme, vii der reaktionsverlauf zwischen o-phenylendiamin und alkyliden-brenztraubensäuren. *Chem. Ber.* **1957**, 90, 828.
3. Nardi, D.; Tajana, A.; Rossi, S. J. Heterocyclic compounds from 3,3-dimercapto-1-aryl-2-propen-1-ones. Note 1. 4-aryl-1,3-dihydro-2H-1,5-benzodiazepine-2-thiones. *Heterocyc. Chem.* **1973**, 10, 815.

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