

3-[Benzyl-(3,5-dimethyl-pyrazol-1-ylmethyl)-amino]-propionitrile

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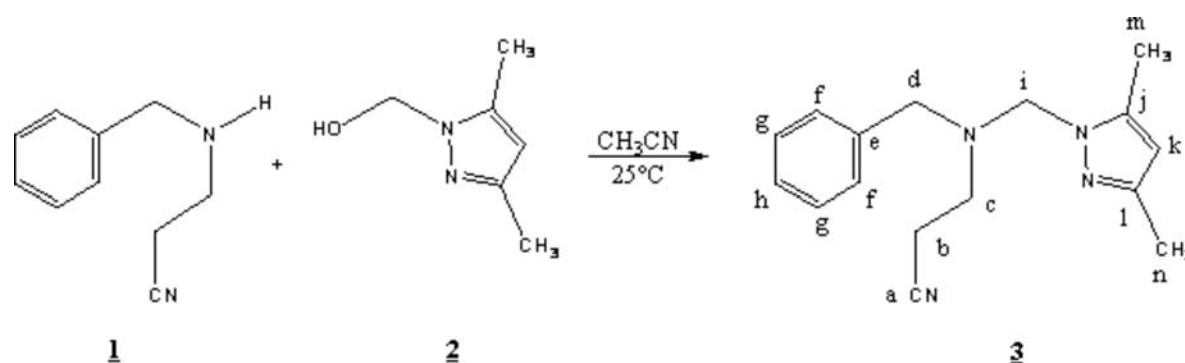
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The products of aza-type *Michael* addition, *i.e.*, β -amino carbonyl compounds and their derivatives, are often used as peptide analogs or precursors of optically active amino acids, amino alcohols, diamines, and lactams [1]. Moreover, β -amino carbonyl functionalities are ubiquitous motifs in natural products such as alkaloids and polyketides [2]. Herein, we report the synthesis of new product using aza-type *Michael* reactions under mild conditions.



A mixture of 3-(benzylamino)propionitrile **1** [3] (1g, 6.25mmol) and 1-hydroxymethyl-3,5-dimethyl pyrazole **2** [4] (0.79g, 6.25 mmol) in 20 ml of acetonitrile was stirred at room temperature for four days, then the mixture was dried with Na₂SO₄ and filtered. The solvent was evaporated under reduced pressure. The product **3** obtained with a 97% yield as yellow oil.

¹H-NMR (300 MHz, CDCl₃): δ = 7.31-7.37 (CH_{arom}, 5H, m); 4.80 (N-CH₂-N, 2H, s); 3.75 (C₆H₅-CH₂, 2H, s); 2.98-3.02 (CH₂-CH₂-CN, 2H, t, J = 7.66 Hz); 2.31-2.35 (N-CH₂, t, J = 7.66 Hz); 2.22 (CH₃, 3H, s) and 2.15 (CH₃, 3H, s).

¹³C-NMR (CDCl₃, 75 MHz): δ = 148.18 (l); 140.5 (j); 138.12 (e); 129.11 (f); 128.99 (g); 128.03 (h); 119.27 (a); 106.35 (k); 66.56 (i); 56.94 (d); 48.24 (c); 17.23 (b); 13.95 (m); 11.46 (n).

EI-MS (70 eV, m/z): 173 (17.4); 171; 119; 95; 91 (100).

References:

1. Fustero, S.; Pina, B.; Salavert, E.; Navarro, A.; Ramirez de Arellano, M. C.; Fuentes, A. S. *J. Org.*

Chem. 2002, 67, 4667.

2. Arend, M.; Westermann, B.; Risch, N. *Angew. Chem., Int. Ed* 1998, 37, 1045.

3. a) Xu, L.W.; Li, L.; Xia, C.-G. *Helvetica Chimica Acta*, 2004, 87, 1522. b) Azizi, N.; Saidi, M. R. *Tetrahedron*, 2004, 60, 383.

4. Dvoretzky I.; Richte G. H. *J. Org. Chem.*, **1950**, 15, 1285.

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