

Synthesis of New *bis*-Bidentate Nitrogen Ligand: 1,4-bis[(3,5-dimethyl-1*H*-pyrazol-1-yl)methyl]piperazine

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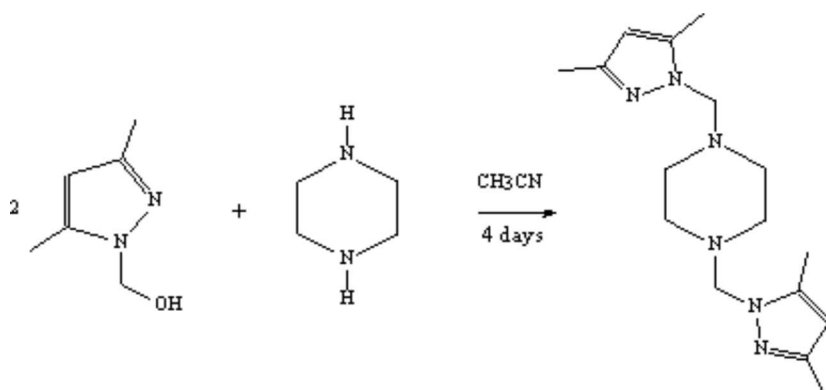
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Received: 15 July 2005 / Accepted: 24 September 2005 / Published: 12 December 2005

Keywords: *bis*-Bidentate N Ligand - Pyrazole – Amonium/ alcohol condensation.



The product **2** was prepared by the addition of piperazine (C₄H₁₀N₂) to **1** [1] according to the reported procedure [2]. To a solution of the substituted hydroxymethylpyrazole **1** (1.26 g, 10 mmol) in acetonitrile (50 ml) was added piperazine (0.95 g, 5 mmol) and the mixture was stirred. The stirring was continued at room temperature for 4 days. The solvent was evaporated under reduced pressure. The solid was crystallised in ethanol to afford **2** as a white solid (2.31 g, 76%).

Melting point: 158-160°C.

IR (KBr, cm⁻¹): 2270 (CH); 1650 (C=C, C=N).

¹H- NMR (60 MHz, CDCl₃): δ= 5.8 (s, 2H, Pyrazol, H^{4,4'}); 4.6 (s, 4H, 2NCH₂N); 2.6 (s, 8H, 4CH₂-N); 2.30 (s, 12H, 4CH₃).

¹³C-NMR (300MHz, D₂O): δ= 9.64 (Pz-CH₃); 12.12 (Pz-CH₃); 69.4 (Pz-CH₂-N); 81.75 (N-CH₂-CH₂-N); 106.38(PzC-H); 141.66 (PzC=N); 149.94(PzC-N).

EI-MS (m/z; %): Calculated for C₁₆H₂₆N₆: 302.418. Found: 303[M+1]; 109; 95.

Acknowledgments

We are indebted to the "Projet Global d'Université Mohamed Premier" for financial support.

References

1. Dvoretzky, I.; Richter, G.H., *J.Org.Chem.*, **1950**, *15*, 1285.
2. Sheu, S-C; Tien, M-J.; Cheng, M-C.; Ho, T-I.; Peng, S-M. And Lin, Y-C., *J. Chem. Soc. Dalton Trans*, **1995**, 3503-3510.

Sample Availability: Available from the authors and MDPI.

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