

6,19-Dimethyl-10,15-bis(pyridin-2-ylmethyl)-1,5,10,15,20,21-hexaaza-tricyclo[15.2.1.1^{5,8}]heneicosa-6,8(21),17(20),18-tetraene

Rachid Touzani,^a Abdelkrim Ramdani^a et Sghir El Kadiri.^{b*}

^aLaboratoire de Chimie Organique-Physique

^{b*}Laboratoire de Chimie de l'Environnement et des Matériaux

Département de Chimie, Faculté Des Sciences, Université Mohamed Premier,

60000 Oujda, Maroc

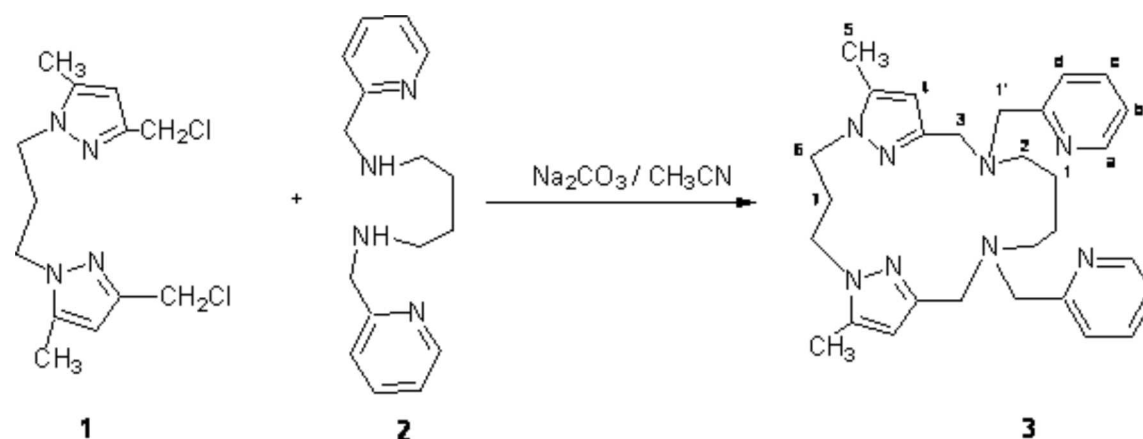
e-mail: elkadiri@sciences.univ-oujda.ac.ma

Received: Received: 27 June 2005 / Accepted: 10 August 2005 / Published: 1 November 2005

Keywords: macrocyclic compounds, macrocyclic cavity, pyrazol.

Despite the numerous polydentate macrocyclic structures already described as neutral receptors for various substrates [1-3], the search for new receptor families is still important with a view to obtaining molecules capable of molecular recognition, transport, selective catalysis or biological models.

In this work, we were interested in mixed donor macrocycle incorporating sp³ and sp² nitrogens; some receptors of this type have been described to the cyclam family and are obtained from 2,6 disubstituted pyridines [4,5].



A suspension of sodium carbonate (12 g, 120 mmol) in acetonitrile (250 mL) was refluxed under magnetic stirring, then a solution of 1,3-bis (3-chloromethyl-5-methylpyrazolyl)propane **1** (2.1 g, 7 mmol) [1] and N,N'-bis(pyridin-2-ylmethyl)propane-1,3-diamine **2** (1.8 g, 7 mmol) [6] in acetonitrile (50 mL) was added dropwise. The solution was refluxed under stirring for two hours, filtered and the solvent was removed in vacuum, the residue was purified on alumina column with (CH₂Cl₂/MeOH: 95/5) as eluent to give the 2.7 g (yield 90 %) macrocycle **3** as an oily substance.

¹H-NMR (250 MHz; CDCl₃): δ = 8.52 H^a; 7.65 H^c; 7.55 H^d; 7.25 H^b; 5.90 (s, 2H, H⁴); 4.05 (t, 4H, H⁶); 3.75 (s, 4H, H³); 3.55 (s, 4H, H^{1'}); 2.49 (t, 2H, H⁷); 2.30 (t, 4H, H²); 2.25 (d, 6H, H⁵); 1.60 (t, 4H, H¹).

MS (FAB; m/z): 499 [M+H]⁺

References:

1. Izatt R. M.; Christensen J. J. *Progress in Macrocyclic Chemistry*, Wiley-Interscience, New York, 1979, Vol. 1, 1981, Vol. 2.
2. Melson G. A. *Coordination Chemistry of Macrocycles*, Plenum, New York, 1979.

3. Bol, J. E.; Willem L.; Driessen and Reedijk., *J. J. Chem. Soc. Chem. Comm.*, **1995**, 1365.
4. Lindoy L. F., *The Chemistry of Macrocyclic Ligand Complexes*, Cambridge University Press, Cambridge, 1988.
5. Hancock R. D.; Martell A. E. *Chem. Rev.*, **1989**, 89, 1875.
6. Hartman, J. A. R.; Kammier, A. L.; Spracklin, R. J.; Pearson, W. H.; Combariza, M. Y. and Vachet, R. W. *Inorganica Chimica Acta*, **2004**, 357, 1141.

Sample Availability: Available from MDPI.

© 2005 [MDPI](http://www.mdpi.org). All rights reserved.