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7,11,15,19-Tetramethyl-1,6,11,15,20,21-hexaaza-tricyclo[15.2.1.1^{6,9}]heneicosa-7,9(21),17(20),18-tetraene

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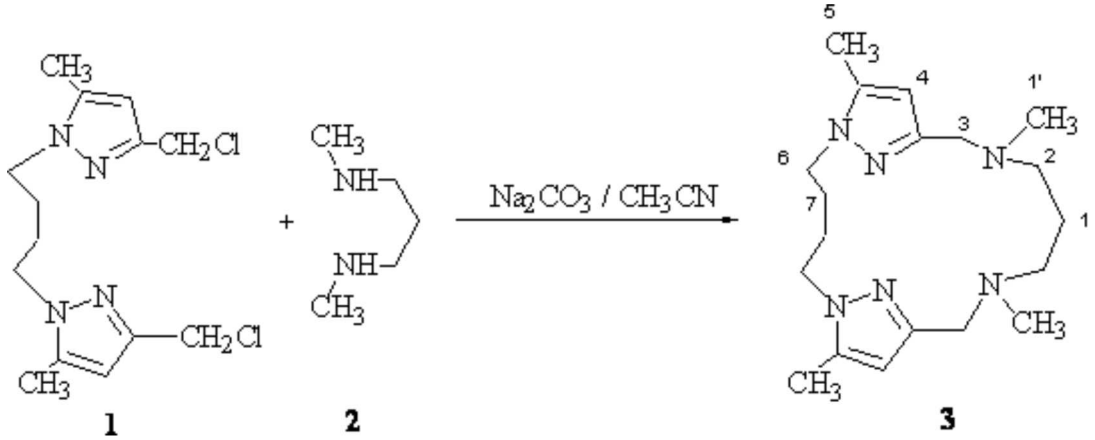
Despite the numerous polydentate macrocyclic structures already described as neutral receptors for various substrates [1-3], the search for new receptor families is still important with a view to obtaining molecules capable of molecular recognition, transport, selective catalysis, and biological models.

In this work, we are interested in the synthesis of mixed donor macrocycles incorporating sp^3 and sp^2 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 1,4-bis(3-chloromethyl-5-methylpyrazolyl)butane **1** (2.2 g, 7 mmol) [6], and *N,N'*-dimethyl-propane-1,3-diamine **2** (0.71 g , 7 mmol) 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 (CH_2Cl_2/MeOH, 95/5) as eluant to give 1.7 g (70 %) of macrocycle **3** as an oily substance.

^{1}H NMR (250 MHz; $CDCl_3$): δ= 5.90 (s, 2H, H^4); 4.00 (t, 4H, H^6); 3.50 (s, 4H, H^3); 2.40 (s, 6H, $H^{1'}$); 2.20 (d, 6H, H^5); 2.19 (m, 4H, H^2); 1.70 (m, 4H, H^7); 1.65 (m, 2H, H^1).

MS (FAB; m/z): 345 **[**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.; Driessen, W. L. 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. Hancok R. D.; Martell A. E ., *Chem. Rev.,* **1989**, 89, 1875
6. Tarrago, G.; El Kadiri, S.; Marzin, C. and Coquelet, C. *New. J. Chem.,* **1991**, 15, 677.

Sample Availability: Available from MDPI.