

A new synthetic strategy leading to homochiral macrocycles derived from 2,6-diformylpyridine and (1*S*,2*S*)-*trans*-1,2-diaminocyclopentane.

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Streszczenie

The condensation of enantiopure *trans*-1,2-diaminocyclopentane (DACP) with 2,6-diformylpyridine (DFP) followed by reduction results in a mixture of 2+2, 3+3, 4+4, and 5+5 macrocyclic amines. The replacement of DACP in this condensation with the 2+1 diamine containing two DACP and one DFP moieties afforded the 4+4 macrocycle as the main product together with a giant 6+6 macrocycle. Conversely, a similar reaction of DACP with the 1+2 dialdehyde, comprising of one DACP and two DFP units, results in the 2+2 macrocycle, whereas the condensation of both 2+1 diamine and 1+2 dialdehyde precursors delivers selectively the 3+3 macrocycle. The formation of larger macrocycles in the condensation of the 2+1 primary diamine with DFP and lack of such preference in the reaction of DACP with the 1+2 dialdehyde was supported by theoretical calculations. The crystal structures of the protonated 2+2, 3+3, 4+4 and 6+6 macrocyclic amines indicate binding of chloride or sulfate anions within the macrocycles.

Słowa kluczowe

molecule, 2,6-Diformylpyridine, Homochiral, Macrocyclic amine, *trans*-1,2-Diaminocyclopentane

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