

Helical porphyrinoids: incorporation of ferrocene subunits into macrocyclic structures.

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Streszczenie

Ferrocene acts as a versatile building block for the construction of porphyrinoids, providing access to macrocyclic structures of various shapes and sized. The two representative systems, shown in the figure, adopt helical conformations that undergo dynamic inversion in solution. Ferrocene-containing porphyrinoids have been synthesized in which ferrocene-1,1'-diyl units are linked to a dipyrin or thiatripyrin to form macrocyclic structures. NMR spectroscopic evidence shows that these new systems adopt helical conformations that undergo an inversion process in solution. In addition, small amounts of unexpected scrambling products have been isolated and characterized, namely a dipyrin-bisferrocenophane and two expanded bis(ferrocene) macrocycles. The formation of these systems, which contain macrocyclic rings of different sizes, is a consequence of the structural flexibility of the ferrocene unit. Cyclic voltammetry shows that ferrocene oxidation is reversible in all the systems reported here, and that it is finely tuned by the properties of the ring system.

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