

Abstract:

The objective of this Thesis was to prepare thiophenohelicenes by [2+2+2] cyclotrimerization of aromatic triynes, namely dithiopheno[5]helicene, dithiopheno[6]helicene and trithiopheno[6]helicene. The *Theoretical part* illustrates which heteroatoms can be embedded into helicene backbone and provides few representative syntheses of such heterohelicenes along with some examples of their utilization. The *Results and discussion* part and *Experimental part* deal with the synthesis of dithiopheno[5]helicene, dithiopheno[6]helicene and (dihydro)-trithiopheno[6]helicene from commercially available compounds by the [2+2+2] cyclotrimerization of corresponding aromatic triynes as the key step in the synthesis. The UV/Vis and fluorescence spectral analyses and electrochemical measurements of the dithiopheno[5]helicene and dithiopheno[6]helicene were performed. The enantiomers of configurationally stable dithiopheno[6]helicene were separated and CD spectra as well as optical rotation of each enantiomer were measured. A barrier of racemization for dithiopheno[6]helicene was also determined.