

New class of chiral azobenzene mesogens. 4-[(E)-(4-alkylphenyl)diazenyl]phenyl cholesteryl adipates

Z. Galewski, J. Czeszejko-Sochacka, I. Niezgoda

Faculty of Chemistry, University of Wrocław, Poland

zbigniew.galewski@chem.uni.wroc.pl

Liquid-crystalline azobenzene derivatives are today very important materials in modern optoelectronics [1,2]. Chiral moiety can induce extra new structures and physical properties. In this communication after short review about mesogenic chiral azobenzenes a new series of compounds with the following general formula are presented [3]:

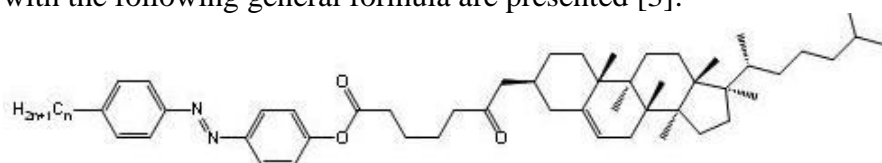


Figure 1: Molecular structure of investigated compounds.

Four types of mesophases were identified: chiral nematic, smectic A*, smectic C* and TGBA. The phase sequence is shown in the picture below. For decyl derivative freezing process is not observed. Glass state is created.

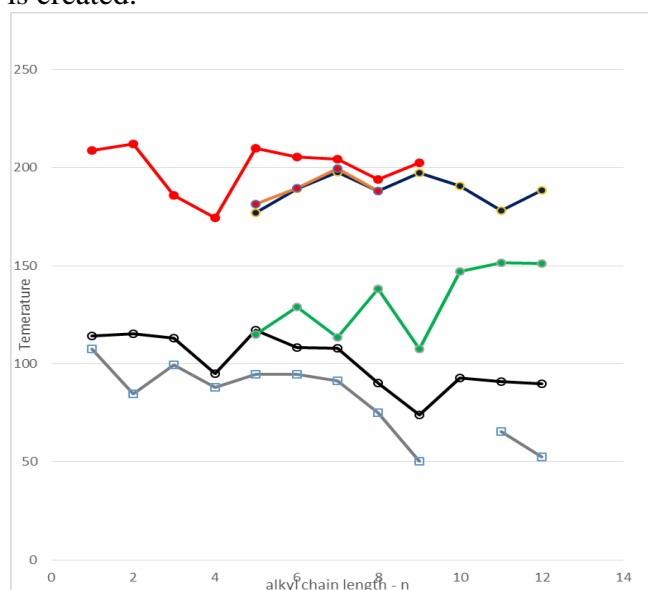


Figure 2: The diagram of the mesophase sequence versus alkyl chain length.

By the use of the UV-Vis spectroscopy the photoisomerization studies were conducted. Moreover, the circular dichroism (CD) spectra were measured.

- [1] Q. Li, *Liquid Crystals Beyond Displays. Chemistry, Physics and Applications*, Wiley, 2012.
- [2] A. Sobolewska, J. Zawada, S. Bartkiewicz, and Z. Galewski, *J. Phys. Chem. C* **117**, 10051–10058 (2013).
- [3] J. Czeszejko-Sochacka, *PhD Thesis*, University of Wrocław, 2010.