



Synthesis and characterization of liquid crystalline azobenzene chromophores with fluorobenzene terminal



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ABSTRACT

Two series of fluorine-substituted benzoate ester type rod-shaped liquid crystals incorporating the azobenzene as side arm linked with terminal double bonds as polymerizable functional groups were synthesized and characterized by polarized-light optical microscopy (POM), differential scanning calorimetry (DSC) and UV–visible spectroscopy investigations. Thus, rod-shaped monomers, namely **4a** and **4b** having odd and even number of carbon in the terminal group exhibited nematic phase and SmA type phase was found at lower temperature. Compound **5** showed nematic phase whereas compound **6** showed SmA phase. These rod-shaped molecules exhibit strong photoisomerization behaviour in solution. The photoswitching properties of the compounds showed *trans* to *cis* isomerization in about 10 s, whereas the reverse process takes place about 120 min in solutions. Proposed materials may have potential to use it in optical storage devices.

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