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Title:	Reversibly photoswitchable alkoxy azobenzenes connected benzenetricarboxamide discotic liquid crystals with perpetual long range columnar assembly
Authors:	Devi, Sudha (/jspui/browse?type=author&value=Devi%2C+Sudha) Venkataramani, Sugumar (/jspui/browse?type=author&value=Venkataramani%2C+Sugumar) Bala, I. (/jspui/browse?type=author&value=Bala%2C+I.) Pal, S.K. (/jspui/browse?type=author&value=Pal%2C+S.K.) Kumar, Pravesh (/jspui/browse?type=author&value=Kumar%2C+Pravesh)
Keywords:	Liquid Crystals X-ray Scattering Temperature Columnar
Issue Date:	2019
Publisher:	Royal Society of Chemistry
Citation:	Organic and Biomolecular Chemistry,17(7), pp. 1947-1954.
Abstract:	Liquid crystals (LCs) with photoswitchable groups are very interesting owing to their dual applications. In this regard, we report the synthesis of long chain alkoxy azobenzene incorporated benzenetricarboxamides 7a–c based room temperature columnar LCs. Apart from the light induced isomerization in the solution phase, the salient feature of these systems is the reversible photoisomerization even in the bulk state with perpetual columnar self-assembly at room temperature. Based on the observation of mesomorphic textures under polarised optical microscopy (POM) and grazing incidence small/wide angle X-ray scattering (GISAXS/GIWAXS) studies, the columnar assembly was found to be stable upon photoisomerization. However, subtle changes in height profile have been observed in AFM measurements after photoswitching. Interestingly, a temperature dependent change between rectangular and hexagonal mesophases in 7a has been observed. Upon extending the alkoxy chain length, only the hexagonal mesophase was observed. For comparison, the corresponding N-methylated derivative of 7a has also been synthesized. Despite the better photoswitching behaviour, due to the lack of planarity and H-bonding, 8a did not show any columnar mesophase.
Description:	Only IISERM authors are available in the order.
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