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Title:	Substituted Aroylhydrazone Based Polycatenars: Tuning of Liquid Crystalline Self-Assembly
Authors:	Nandi, R. (/jspui/browse?type=author&value=Nandi%2C+R.)
Keywords:	Aroylhydrazone Liquid Crystal Mesophase Polycatenar Self-Assembly
Issue Date:	2018
Publisher:	Wiley-VCH Verlag
Citation:	ChemistrySelect, 3(14), pp. 4027-4037.
Abstract:	<p>A systematic investigation on mesomorphic properties of two new classes of substituted-aroylhydrazones having semi-flexible ester (ester based polycatenars) and flexible ether linker (ether based polycatenars) with variable alkoxy chain length (n=6, 8, 10, 12, 14, 16) are described. The members of each series with six soft alkoxy chains formed columnar self-assembly as confirmed by differential scanning calorimetry analysis, polarized optical microscopy and powder X-ray diffraction studies. For the ester based polycatenar scaffolds, the mesophase of lower alkoxy chain members exhibited columnar oblique phase which further transformed to columnar hexagonal phase with the increase in the chain length and thus showing a mesophase crossover phenomenon. In the case of ether based polycatenars, the presence of ether link provides significant stabilization of the columnar oblique phase for all the members except the lower homologues. The driving forces for the appearance of columnar self-assembly are the intermolecular hydrogen-bonding interactions between the amide groups (-C=O...H-N-) of aroylhydrazone core, which was confirmed by the temperature dependent IR studies. In addition, both the series of compounds exhibit good gelation properties, which is assisted by the intermolecular hydrogen bonding.</p>
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