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Title:	Room temperature columnar liquid crystalline self-assembly of acidochromic, luminescent, star-shaped molecules with cyanovinylene chromophores
Authors:	De, J. (/jspui/browse?type=author&value=De%2C+J.) Pal, S.K. (/jspui/browse?type=author&value=Pal%2C+S.K.)
Keywords:	Cyanovinylene chromophores Acidochromic Liquid crystalline N-salicylideneanilines
Issue Date:	2018
Publisher:	Royal Society of Chemistry
Citation:	Journal of Materials Chemistry C, 6(7), pp. 1844-1852
Abstract:	Two new star-shaped tris(N-salicylideneanilines) (TSANs) incorporated with cyanovinylene chromophores were prepared through a multistep synthesis. The position of the cyano group was altered in the target molecules, to understand its impact on the photophysical and thermotropic behavior, in comparison to the stilbene derivative without a cyano group. The presence of the cyano group enhanced the mesophase range in comparison to the non-cyano stilbene derivative. Further, enhanced intermolecular interactions led to the stabilization of the columnar rectangular phase in comparison to the columnar hexagonal phase of the simple stilbene derivative. These compounds exhibited the freezing of the columnar phase in a glassy state, which is beneficial from the device fabrication point of view. Thus the introduction of the cyano group within the molecular structure of a star-shaped TSAN enhanced the intermolecular interactions and also altered the luminescence behavior. Such ordered luminescent molecular assemblies which stabilize the columnar order over a long range are promising from the viewpoint of emissive displays. These compounds can be utilized for the sensing of volatile acids in solution at very low concentration (in parts per billion levels) or in the thin film state, by either fluorescence switching or quenching.
Description:	Only IISERM authors are available in the record.
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