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| Title:                  | The effect of regioisomerism on the mesomorphic and photophysical behavior of oxadiazole-based tris(N-salicylideneaniline)s: synthesis and characterization†  |
| Authors:                | De, J. (/jspui/browse?type=author&value=De%2C+J.)<br>Pal, S.K. (/jspui/browse?type=author&value=Pal%2C+S.K.)  |
| Keywords:               | Characterized<br>Synthesized<br>Star-shaped tris<br>Regioisomeric   |
| Issue Date:             | 2017  |
| Publisher:              | Royal Society of Chemistry  |
| Citation:               | New Journal of Chemistry, 41(18), pp.9908-9917.   |
| Abstract:               | Two new regioisomeric star-shaped tris(N-salicylideneaniline)s are synthesized and characterized. The arms of these star-shaped mesogens differ from each other with respect to the substitution on the 3,5-positions of the central 1,2,4-oxadiazole moieties. The unsymmetrical nature of substitution leads to a change in the distribution of electron density, which will have an effect on the type of columnar self-assembly. One of these molecules stabilizes the columnar hexagonal phase, while the other one stabilizes the columnar rectangular phase. The columnar rectangular phase, which requires enhanced intermolecular interactions, is observed in the case of the star-shaped molecule, where the trialkoxy phenyl group is connected at the 5-position of the heterocycle, whereas the columnar hexagonal phase is observed in the case of the star-shaped molecule, where the trialkoxy phenyl group is connected at the 3-position of the heterocycle. These compounds showed reduced melting points, clearing points and an enhanced mesophase range with respect to their symmetric counterpart (1,3,4-oxadiazole derivative) reported earlier. All the molecules exhibited green light emission in solution, with good quantum yield. The emission of 1,2,4-oxadiazole derivatives was considerably red-shifted in comparison to those of 1,3,4-oxadiazole derivatives. This study emphasizes how a minor change in the molecular structure brings about a beneficial change in the self-assembly characteristics of star-shaped molecules. |
| Description:            | Only IISERM authors are available in the record.  |
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