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Title: Synthesis of Bicarbazole-based luminescent Discotic Liquid Crystals

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Abstract:

The columnar mesophase of discotic liquid crystals (DLCs) has potentially derived and self-organizing property. The self-organized columns of DLCs are thought to be a quasi- one-dimensional molecular wire, with efficient energy and charge migration, and also used as a functional material for device applications such as photovoltaic solar cells, organic light-emitting diodes (OLEDs), one-dimensional conductors, photoconductors, organic field-effect transistors (OFETs), and gas sensors, etc. So, here we synthesized bicarbazole based luminescent discotic liquid crystal. The idea behind using bicarbazole as a central rigid core and alkyne as a side mesogenic unit is to develop a donor-acceptor system. There are several benefits to using carbazole as starting material like-it is a low-cost starting material, luminescent in nature, and exhibits unique photoelectrical properties. The initial part of the dissertation discusses the concise introduction and classification of discotic liquid crystals. Further, the synthesis and result part has been discussed.

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