

## Abstract

This thesis deals with the study of structure-property relationship in two series of achiral hockey stick-shaped molecules with different lateral halogen substitutions at the terminal polar ring. The behaviour of the halogens ( $X = F, Cl$ ) at the lateral position of the short arm and the role of end alkyl chains ( $n = 4, 6, 8, 10, 12, 14, 16, 18$ ) at the long arm on phase structure of the mesogens have been characterized. All the compounds are shown to exhibit enantiotropic Liquid Crystal behavior and the Liquid Crystal nature has been characterized and verified.

The first section of this thesis deals with the introduction of LCs, brief history, applications and types of LCs. The class of BLCs have been elaborated.

In the second section, the motivation of our work has been presented with detailed synthesis and characterization of all the compounds. The synthetic procedures have been mentioned and the compound's spectral and thermal behaviour has been analysed via different spectroscopic techniques. The chapter is rounded off with the conclusions and future outlook section.