Title:	Ordering Transitions in Liquid Crystals Driven by the Interfacial Assembly of Surfactin
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Abstract:	Liquid crystal (LC) is an intermediate form between solid and liquid. Due to their unique and interesting properties, LCs has gained great attention in the field of biosensors in the past few decades. It is attributed to one of the important properties of LCs- amplification of ordering perturbation caused by binding of an analyte at the surface and converts it into optical outputs that can be easily observed with the naked eye. This orientational transitions of LC materials can reflect interactions of many biological molecules, such as lipid 1 , protein 2 , nucleic acid, virus, bacteria 3 etc. In this MS project thesis, on the topic “Ordering Transitions in Liquid Crystals Driven by the Interfacial Assembly of Surfactin” work, we are focusing on studying and detecting the interactions of the bacterial lipopeptide - Surfactin at the aqueous-LC interface and its molecular behavior at different pH. With bacteria being a concern in the day to day life, a method for detecting and identifying different strains is of great interest. The secreted lipopeptides are species-specific and can be used as the main chemical entities in the differentiation of different microorganisms. This chemical specificity and identification of microorganisms are important in clinical diagnostics and for detecting biofilm formation 4 . The studies on the interfacial properties of surfactin are also important in understanding its various industrial and biological applications. The results obtained also provides a foundation of knowledge that can be used to design sensing system/ biomolecular interfaces based on LCs at which interactions involving lipopeptides can be studied. The first chapter deals with the basic introduction of Liquid crystals, its classification, and properties. The Second chapter includes the experimental procedures followed. In the third chapter, results, conclusions and the future work that can be carried out are explained.
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