

## **Synthesis and mesophase behaviour of Benzylidene-based molecules containing two Azomethine units**

### **ABSTRACT**

The research work involves the synthesis and characterization of intermediates 4-heptyloxybenzaldehyde (1) and 4-dodecyloxybenzaldehyde (2). Five compounds with two Schiff base linking units were further synthesized by condensation reaction using aldehyde and 1, 4-phenylenediamine. These compounds include N, N'-dibenzyliden-benzen-1, 4-diamine (3); N-benzyliden-N'-(4-chlorobenzyliden) benzen-1, 4-diamine (4); N-benzyliden-N'-(4-methoxybenzyliden) benzen-1, 4-diamine (5); N-benzyliden-N'-(4-heptyloxybenzyliden) benzen-1, 4-diamine (6) and N-benzyliden-N'-(4-dodecyloxybenzyliden) benzen-1, 4-diamine (7). These compounds were characterized using Fourier-Transform Infrared (FTIR), <sup>1</sup>H and <sup>13</sup>C Nuclear Magnetic Resonance (NMR) spectroscopy and CHN elemental analysis. Polarized Optical Microscope (POM) was used to detect liquid crystal mesophase(s) and their thermal behaviour was measured using Differential Scanning Calorimetry (DSC). Compounds 4, 6 and 7 showed the nematic phases, while compounds 3 and 5 were found to be non-mesogenic without any liquid crystal properties.