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**[Revised Manuscript MOLLIQ 2017 503 R1]****Benzimidazole based Mesogenic Schiff-Bases: Synthesis and characterization**

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**Abstract**

Two homologous series of mesogenic Schiff-bases, *N*-4-((alkoxy)-(phenyl-3-hydroxy-4-(4-(5-methylbenzimidazol))-2-alkoxysalisylaldimine)benzoate (**7a-d**) and *N*-4'-(5-methylbenzimidazole)-phenyl-4-alkoxysalisylaldimine (**8a-d**) incorporating benzimidazole moiety have been prepared and the molecular structures studied by FT-IR, NMR and ESI-MS spectrometry. Mesogenic behaviour was investigated by polarizing optical microscopy (POM), differential scanning calorimetry (DSC) and variable temperature powder X-ray diffraction (PXRD) techniques. Changing the spacer (ester-linked to non-ester linked) of the Schiff-base results in enhancement of thermal stability and phase transition temperature. The members of series-I show monotropic *SmA* while those of series-II reflect enantiotropic *SmA* mesomorphism. An electrochemical study of a representative Schiff base in each series (**7d** and **8c**) showed an electrical band gap 1.26 eV and 1.22 eV respectively.

**Keywords:** Liquid crystal, Benzimidazole, Schiff-base, *SmA*

**1. Introduction**

Liquid crystals are self assembled dynamic functional soft materials having both order and mobility at molecular, supramolecular and macroscopic levels; thus, they are fascinating materials in many areas of applied science<sup>1</sup>. It is believed that mesomorphic behaviour of an organic compound can be varied by modifying its molecular structure<sup>2-4</sup>. Recently, there has

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