

ABSTRACT:

Two new series of Schiff base thermotropic liquid crystals, 6-methoxy-2-(2-hydroxy-4-alkanoyloxybenzylidenamino)benzothiazoles and 6-ethoxy-2-(2-hydroxy-4-alkanoyloxybenzylidenamino)benzothiazoles, comprising different terminal groups, a methoxyl and ethoxyl group, respectively, were synthesized. Structural elucidation was carried out using elemental analysis and spectroscopic techniques such as Fourier transform infrared (FTIR), ¹H and ¹³C nuclear magnetic resources (NMR), and mass spectrometry. The mesomorphic properties and thermal stabilities of the title compounds were studied by using differential scanning calorimetry, optical polarizing microscopy, and thermogravimetric analysis. No liquid-crystal phases were observed for the short-chain members (n = 2 and 3) in both series, and the remaining members all exhibited nematic phase with Schlieren or marble-like textures. Effects of the lateral hydroxyl group, terminal group, and the length of the terminal alkanoyloxy chain on the mesomorphic properties are discussed. Structure-property relationships were established upon comparison with other structurally related compounds.