Liquid crystal behavior of three novel glycosides

Abstract

Novel glycosides synthesized by linking D-glucose to three different non-polar aglycones parts: cinnamyl alcohol, chloroxylenol and 3-pentadecylphenol show both thermotropic and lyotropic liquid crystal phases. The effect of inclusion of a rigid spacer in between hydrophilic and hydrophobic parts on the stability of liquid crystal phases is investigated. Both acetylated and deacetylated compounds exhibit thermotropic and lyotropic liquid crystal behaviour. The liquid crystal phases were confirmed as Smectic A, Smectic B and hexagonal columnar by X-ray studies.

Key words: Glycolipids, liquid crystal, synthesis, thermotropic, lyotropic