

Singh, M. K.; Jayaraman, N.; Rao, D. S. S.; Prasad, S. K., 2008, "Effect of the C-2 hydroxyl group on the mesomorphism of alkyl glycosides: Synthesis and thermotropic behavior of alkyl-2-deoxy-D-arabino-hexopyranosides", *Chem. Phys. Lipids*, 155, 90 – 97.

This article reports a systematic study of a series of alkyl glycosides, the glycoside component being the 2-deoxy glycosides. The adopted synthetic method allows the preparation of both the anomers of the alkyl glycosides. The alkyl component is constituted by C8 to C18 methylene chains. Upon synthesis, a systematic study was conducted, using the polarizing microscopy and the differential scanning calorimetry. The study shows that these new types of alkyl glycosides exhibit significant differences in the mesophase profiles, when compared to the normal alkyl glycosides that have the hydroxyl group on all the carbons of the sugar pyranoside ring. Important differences are (i) the  $\alpha$ -anomers are non-mesomorphic; (ii) the  $\beta$ -anomers of the alkyl 2-deoxy glycosides are mesomorphic only between C9 and C14 alkyl chain lengths; (iii) the non-mesomorphic  $\alpha$ - and the  $\beta$ -anomers can exhibit induced mesomorphism in a binary mixture of both of these components and (iv) the mesomorphism exist only in a short temperature ranges. These and more significant differences in the thermotropic behavior of the alkyl 2-deoxy glycosides illustrate that the hydroxyl group at C-2 of the pyranoside ring is critical for the established thermal behavior of the normal alkyl glycosides.