Singh, M. K.; Jayaraman, N.; Rao, D. S. S.; Prasad, S. K., 2010, "Role of hydroxyl group on the mesomorphism of alkyl glycosides: Synthesis and thermal behavior of alkyl 6-deoxy-β-D-glucopyranosides", *Chem. Phys. Lipids, 163*, 580 – 585.

This article summarizes a systematic study of the mesophase behavior of a homologous series of alkyl glycosides, constituted with 6-deoxysugars. Profound importance of alkyl glycosides and their mesophase behavior were established primarily on native sugars so far. Extensive control of hydrogen bonding interactions, along with van der Waals interactions, is responsible for the mesophase and aggregation behavior of alkyl glycosides. Particularly, hydrogen bonding interactions are extensive, a consequence of this is the exclusion of chiral mesophase formation in alkyl glycosides, even when sugars are abundant with chiral centres. In an effort to understand the role of hydrogen bonding in alkyl glycosides, we undertook studies on deoxy sugars, devoid of one or more hydroxyl groups in their constitution. This work deals with 6-deoxysugar-based amphiphiles and a study of their mesogenic behavior. From the studies, we identify that the homologous series do not entirely adopt the mesophase behavior of normal alkyl glycosides. Rather, the existence of plastic phases was observed for few homologues, in addition to smectic A phase for the remaining homologues. The studies illustrate the fine-interplay of the hydrogen bonding, originating from the hydroxyl groups, and their mesogenic behavior. We had reported previously the mesogenic properties of alkyl 2-deoxy glycosides (Singh, M. K., Jayaraman, N., Rao, D. S. S., Prasad, S. K. 2008. Chem. Phys. Lipids, 155, 90-97). Appropriately, we could analyze the results of the alkyl 6-deoxy glycosides with that of alkyl 2-deoxy sugars and normal alkyl glycosides.