

Singh, M. K.; Swain, D.; Row, T. N. G.; Jayaraman, N., 2009, "Crystal structures and thermal analyses of alkyl-2-deoxy- $\alpha$ -D-arabino-hexopyranosides", *Carbohydr. Res.*, 344, 1993 – 1998.

This paper describes the crystal structures and the thermal behavior of a novel homologous series of alkyl 2-deoxy- $\alpha$ -D-arabino-hexopyranosides, with the alkyl chain of C8 to C18. Systematic single crystal X-ray structural determinations show that the 2-deoxy alkyl glycosides form a bilayer, interdigitised structure, with alternate polar and apolar regions. The molecular packing is defined by the hydrogen bonding symmetry associated with the sugar moiety, as well as, the alkyl chain packing. Further, being the structural determination of a series of new alkyl glycosides, we have compared the results with the normal alkyl glycosides. Prominent differences between the 2-deoxy glycosides and the normal glycosides are that: (i) an odd-even effect in the crystal packing is observed for the 2-deoxy glycosides, unlike the normal alkyl glycosides; (ii) the molecular planes are nearly perpendicular, unlike the normal alkyl  $\alpha$ -D-glycosides, wherein the molecular planes are parallel and (iii) the thermal behavior of the 2-deoxy glycosides are different, from that of the normal alkyl glycosides. These observations put together illustrate the profound differences in the molecular behavior, resulting from a hydroxyl group alternation in the sugar moiety.