

Naresh, K.; Bharati, B. K.; Jayaraman, N.; Chatterji, D., 2008, "Synthesis and mycobacterial growth inhibition activities of bivalent and monovalent arabinofuranoside containing alkyl glycosides", *Org. Biomol. Chem.*, 6, 2388 – 2393.

The work reported herein pertains to the studies of glycolipids belonging to the cell wall components of mycobacteria. The glycolipid cell wall components of the mycobacteria are known to be responsible for initiating a cascade of events on a host cell, leading to the host cell infectivity and pathogenesis. The lipoarabinomannans are important cell wall structural components. The multiple number of arabinofuranosides, along with lipidic chains and mannopyranosides in lipoarabinomannans, are identified to be important for the binding of the mycobacteria to the host cell surface. In a programme, we initiated the synthesis of the glycolipids, in the form of alkyl glycosides, having the arabinofuranoside trisaccharides. Two types of alkyl glycosides were synthesized, one constituted with a single trisaccharide unit (monovalent) and another constituted with two sugar units (bivalent) within the molecule. Upon accomplishing the synthesis, we have conducted the biological efficiencies of the alkyl glycosides in a *Mycobacterium smegmatis* growth assay. The assay establishes that these alkyl glycosides are inhibitors of the mycobacterial growth at differing concentrations. The trisaccharide alone or the lipid groups without the sugar moieties do not interrupt the cell growth. The important finding of this work is that the designed glycolipids function as inhibitors. The study opens up a possibility that arabinofuranoside containing alkyl glycosides may form as a new class of inhibitors of the mycobacterial growth.