Murthy, B. N.; Sinha, S.; Surolia, A.; Jayaraman, N.; Szilágyi, L.; Szabó, I.; Kövér, K. E. 2009, “Interactions of aromatic mannosyl disulfide derivatives with concanavalin A. Synthesis, thermodynamic and NMR studies”, *Carbohydr. Res.*, *344*, 1758 – 1763.

This manuscript pertains to the studies of multivalent carbohydrates constituted with disulfide linkages. A new synthetic method involving the reaction of 1-D-thiomannose tetraacetate with arylmethylene-methane-thiosulfonates was used to covalently link the sugars with benzenoid cores. These disulfide linked bivalent and trivalent glycoclusters are different, eminently through the three bond glycosidic linkages between the sugar and the aglycon moieties, as opposed to two-bond glycosidic linkages present normally with O-glycosides. The disulfide linked glycoclusters are prepared in both anomeric forms. Following synthesis, an assessment of the lectin binding properties of these multivalent glycosyl disulfides were undertaken by isothermal titration calorimetry. Systematic studies of a series of eight mutltivalent glycosyl disulfides have offered an insight into the thermodynamic properties of these new glycoclusters binding to a lectin. On the one hand, the α-anomeric mannopyranosyl glycosyl disulfides exhibited higher affinities than constituent mannopyranoside sugar, the corresponding β-anomer did not lead to enhanced binding affinities. Rather, it is realized that the β-anomers engage in a type of dynamic binding, by which the multivalent ligands are able to bind more than lectin binding site. Thus, in addition to exploring the lectin binding properties of new, multivalent glycosyl disulfides, the studies offer an indication of a possible existence of co-operativity in ligand-lectin interactions, namely, the lectin binding sites may not be considered as isolated, non-interacting sites, as perceived so far.