Looking for motivated students for their doctoral and dissertation work.

**Research Interest:**

Mass spectrometry has become an invaluable tool in the characterization of biomolecules. The MS technique has profound application in ‘omics’ study such as proteomics, glycomics, lipidomics, metabolomics etc., quantitation studies and analysis of contaminants in various biological samples.

i) Majority of the proteins undergoes glycosylation as post translational modification which is complex and diverse. Currently we are interested in understanding this diversity in mammalian milk (global and protein level) and to determine their bio functionalities like prebiotic potential, anti-pathogenic properties as well as anti-cancerous role. We employ various methods to elucidate the bioactivity of glycans such as protein purification, *in vitro* assays, cell culture studies etc. A recent study from our group on glycan analysis of a milk glycoproteins has been published in J Agri. Food. Chem. 2018.

![Journal Cover](image-url)

**Comparative Site-Specific N-Glycosylation Analysis of Lactoperoxidase from Buffalo and Goat Milk Using RP-UHPLC–MS/MS Reveals a Distinct Glycan Pattern**

Gnanesh Kumar B S, Prasad Mohan Reddy, and Sanjay Kottekad

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*St. Joseph’s College (Autonomous), Shanthinagar, Bengaluru, Karnataka 560027, India*

ii) Understanding the glycosylation pattern of anti-aging proteins and studying the effect of food bioactives on the expression of this protein and altering the glycan pattern.

iii) Elucidation of bioactivity of oligosaccharides derived from seed mucilage.
Scientist (2017-Till date)

- Department of Biochemistry, CSIR-CFTRI, MYSURU -570020

Project students guided: 2
- Project Member: MLP 0207
- Project Member: HCP 0016

Post-doctoral research experience:


Educational Qualifications:

- Doctor of Philosophy (PhD)
  Department of Biochemistry, University of Hyderabad, Hyderabad, India (2014)

- Master of Science (M.Sc)
  Department of Studies in Biochemistry, University of Mysore (2006-2008)

Research Papers:

At CSIR-CFTRI, Mysuru


Earlier


• B. S. Gnanesh Kumar, G. Pohlentz, M. Mormann and N. Siva Kumar (2013) Characterization of α-mannosidase from Dolichos lablab seeds: partial amino acid sequencing and N-glycan analysis. Protein Expr and Purif, (89) 7-15. PMID: 23422784


**Awards / Fellowships:**

• Council of Scientific and Industrial Research (CSIR) - Junior Research Fellowship, June-2008

• Indian Council of Medical Research (ICMR) - Junior Research Fellowship, August-2008

• Student member of First Indo-German Research Training Group on Molecular and Cellular Glycosciences (IRTG-MCGS). Under this programme visited Institute for Hygiene, University of Münster, Germany for doctoral work during April-July 2010 and June 2011- January 2012.
Conferences/ Workshops Participation:

• Poster presentation in ‘MBU Inhouse Symposia’ held at IISc, Bangalore on August 8, 2015

• Oral presentation in ‘DFG-On-site Evaluation of IRTG-MCGS’ held at University of Münster, Münster, Germany during July 3-4, 2013

• Poster presentation in Gordon Research Conference (GRC) –Glycobiology held in Ventura, Los Angeles, USA during March 3-8, 2013

• IISc Mathematics Initiative workshop on ‘Proteins Structure, Function and Folding’ held at Indian Institute of Science, Bangalore during December 20-24, 2010

• DBT-ISLARE National workshop on ‘Genome Analysis’ held at Osmania University, Hyderabad during November 11-20, 2010
Research interest of Dr. Gnanesh Kumar B S, Scientist, Dept. of Biochemistry

Mass spectrometry has become valuable tool in characterization of biomolecules. Our lab has expertise in utilizing mass spec. techniques to characterize proteins and their post translational modifications mainly glycosylation. We have begun elucidating glycan pattern in milk samples and have obtained novel insights on glycan pattern which has been published recently in J Agri. Food Chem. (2018). Along with the structural characterization of bound glycans with site specificity we are also interested in understanding the bioactivity of these glycans.

Another interesting area is in the preparation of oligosaccharides from various seed mucilage, structural characterization and understanding its enhanced biofunctionality such as prebiotic, anti-adhesive and beneficiary effects on gut.

One can also involve in the collaborative works and will have opportunities to get more expertise in mass spectrometry based characterization of various biomolecules.