



Brief Biodata

Professor Asis Datta

Distinguished Emeritus Scientist, Formerly:

Founder Director and Professor of Eminence, National Institute of Plant Genome Research and Vice Chancellor, Jawaharlal Nehru University, New Delhi)

National Institute of Plant Genome Research (NIPGR)

Aruna Asaf Ali Marg, JNU Campus, New Delhi- 110067

E-mail: asis_datta@rediffmail.com, asis_datta@nipgr.ac.in

Phone No. (Off) 91-11-26742750, 26735119

Fax 91-11-26741759

Prof. Asis Datta (Ph.D., D.Sc., FNA, FASc., FNASc, FTWAS) is Distinguished Scientist at National Institute of Plant Genome Research, New Delhi, India. **He has been Vice-Chancellor of Jawaharlal Nehru University (JNU), Professor of Eminence and Founder Director of National Institute of Plant Genome Research (2002-2008).** Professor Asis Datta has done pioneering work in the field of molecular biology. His individual and group achievements in the field of molecular biology and genetic engineering have been spectacular and have secured for him a unique position in several areas of frontier research. **Professor Datta is known for his work on the pathogenic yeast, *Candida albicans* as a model system, which opened up the possibility of designing a therapy to combat candidiasis.** In addition, the scientific/research contributions have been vital in areas of food/nutritional security and Use of genetically modified food. His group is known for pioneering contributions in molecular biology and identification and manipulation of novel genes leading to the production of transgenics of high societal value. Professor Asis Datta has researched and taught at many internationally respected institutions. He has been making contributions in basic and applied Biochemistry and Molecular Biology for more than three decades with several publications in international journals and with Indian and US patents. In fact, in India first time genes were patented in US by his group. Professor Datta and his team linked New Biology with agriculture, medicine, science, industry and society to make a global partner in biotechnology. His relentless effort throughout has established a vibrant school of research on “structure -function-application” of eukaryotic genes, which led to the **establishment of the National Institute Plant Genome Research, India’s first and only one research centre of its kind.**

Career

Government of India Fellow Bose Institute, Calcutta, (1964-1968)
Research Associate, Public Health Research Institute New York, USA (1968-1971)
Assistant Virologist, University of California Los Angeles, USA (1971-1973)
Visiting Scientist, Roche Institute of Molecular Biology, NY USA (1976-1977, 1980- 1981)
Associate Professor, School of Life Sciences, JNU (1975-1978)
Professor, School of Life Sciences, JNU (1978 - 2008)
Dean & Professor, School of Life Sciences, JNU (1983-1985)
Rector & Professor, JNU (1993-1996)
Vice-Chancellor (1996-2002) & Chairman, National Institute of Plant Genome Research, (1998-2002)
Founder Director, National Institute of Plant Genome Research (June 2002- 2008)
Professor of Eminence, National Institute of Plant Genome Research (2008 - February 28, 2013)
Distinguished Scientist, National Institute of Plant Genome Research (March 1, 2013 -till date)

Awards, Distinction, Recognition as Scientist

Field of Specialization: Molecular Biology, Microbiology and Genetic Engineering

Major Awards

- **Shanti Swarup Bhatnagar award in Biological Sciences by the CSIR, Government of India (1980).**
- **Guha Memorial award (1988)**
- **First G.D. Birla award for SCIENCE AND TECHNOLOGY (1991)**
- **Dr. Nitya Anand Endowment Award, INSA (1993)**
- **FICCI award for R & D in Life Sciences (1994)**
- **Om Bhasin award for Science & Technology (1995)**
- **Third World Academy Award (TWAS) for Biology (1996)**
- **Goyal Prize in Life Sciences for the year 1996**
- **Ranbaxy Award in the field of Medical Sciences (Basic Research) for the year 1996.**
- **“Padma Shri” a civilian award of the Govt. of India for the contribution in the field of education (1999)**
- **Indira Gandhi “Priyadarshini Award” (2000)**
- **R.D. Birla National Award for 2000 in Biochemistry /Molecular Biology**
- **Dr. B.R. Ambedkar Centenary Award for Excellence in Biomedical Research, ICMR, Government of India (2003)**
- **Bashambar Nath Chopra Memorial Award, INSA (2004)**
- **Indian Science Congress -Asutosh Mookerjee Gold Medal Award during 92nd Indian Science Congress at Ahmedabad (2005)**
- **Life time achievement award in the 93rd Session of Indian Science Congress (January 2006)**
- **“Padma Bhushan” a civilian award of the Govt. of India for the contribution in the field of Science and Technology (2008)**
- **Life time achievement award, Biotech Research Society (2011)**
- **Priyadarshini Gold Medal award for outstanding achievements (2011)**
- **G.M. Modi Science award for innovative Science and Technology (2011)**
- **Bharat Ratna Mother Teresa Gold Medal Award (2014)**
- **Pandit Jawaharlal Nehru Gold Medal Award (2014)**

DISTINCTIONS

- UGC National Lecturer (1985)
- NBTB Overseas Associateship (1986)
- Fulbright Fellowship (1987)
- Rockefeller Foundation Fellowship (1988-1992)
- **Fellow, Indian National Science Academy, New Delhi**
- **Fellow, Indian Academy of Sciences, Bangalore**
- **Fellow, National Science Academy, Allahabad**
- **Fellow, Third World Academy of Sciences**
- Sisir Mitra Memorial Lecture, Delhi University, (1992)
- Sectional Presidential address, National Academy of Sciences, Allahabad (1994).
- First Foundation Day Lecture, Sanjay Gandhi PGI of Medical Sciences, Lucknow (1994)
- CSIR Foundation day lecture, Centre for Biotechnology, Delhi, 1994
- CSIR Foundation day lecture, CFTRI, Mysore (1995)
- Platinum Jubilee Lecture, Indian Science Congress Association, Calcutta (1995)
- **Gold Medal for delivering D.M. Bose Endowment Lecture organized by Indian Science News Association (1996).**
- Golden Jubilee Lecture, CFTRI (2000)
- DBT Sponsored Lecture on “Impact of Plant Genomics in Crop Productivity”, CIMAP, Lucknow (2000)
- Asia-Pacific Chambers of Commerce & Industry sponsored Lecture on “New Technologies and Structural Changes in the Agriculture Sector on the eve of 18th Biennial Confederation of Asia Pacific Chambers of Commerce and Industry Conference in Ho Chi Minh City, Vietnam (2000)
- **Presidential Address on “Stakeholders dialogue on Agricultural Biotechnology”: Biosafety and Economic Implications” organized by TERI at Calcutta (2000)**
- Lecture at the First Chemical Engineering Congress of the Millennium, CHEMCON-2000 at the Science City in Calcutta organized by CHEMBIOTEK Research International, Calcutta
- JC Roy Memorial Lecture, IICB, Calcutta (2001)
- CSIR Foundation Day lecture, CDRI, Lucknow (2001)
- **National Science Day Lecture, NCL, Pune (2001)**
- Key note address on “Present status of Biotechnology and its future” at Indian Merchant Chamber Annual Round Table on achieving prosperity through Biotech in Asia pacific Region” Mumbai (2001)
- Keynote address on the Status of Biotechnology in Agriculture in Asia and the Pacific at FAO sponsored and the Asia pacific Association of Agricultural Research Institute (APAARI) Expert consultation, Bangkok (March, 2002)
- **GN Ramachandran Lecture at 16th FAOBMB Symposium, Taipei (September, 2002)**
- Golden Jubilee Celebration of the discovery of DNA double helix-special lecture (2003)
- Annual Day Lecture, CIMAP, Lucknow (2003)
- Inaugural Lecture in the seminar on “Bio-Horizon”, IIT, Delhi (2003)

- Prof. L.S. Ramaswami Memorial Oration Lecture, Rajasthan University (2003)
- Technology Day Lecture, Central Road Research Institute (2003)
- **Technology Day Lecture, ICMR (2003)**
- Dr. Nuggehalhi Narayana Memorial Lecture at IISc. Bangalore (2003).
- Inaugural Lecture at University of Agricultural Sciences, Bangalore (2003)
- Delivered Presidential Address on “Science and Society in 21st Century: “Quest for Excellence” at 91st Session of Indian Science Congress (January 3, 2004)
- Foundation Day Lecture, Central Jalma Institute (ICMR), Agra (2004)
- Special Guest of honor, University of Information Technology of Science (UITS), Dhaka (2004)
- Golden Jubilee Series Lecture at Birla Institute of Technology, Ranchi (2005)
- Centenary Celebrations Lecture, Federal Hall Society, Kolkata (2005)
- **Prof. P.C. Mahalanabish Memorial Lecture, West Bengal State Council of Science & Technology (2005)**
- Platinum Jubilee Lecture, Visva Bharati University, Santiniketan (2005)
- **Mahendra Lal Sircar Memorial Lecture, Indian Association for the cultivation of Science, Kolkata (2005)**
- **Invited Lecture, Science & Technology in Society Forum, JETRO Symposium, Kyoto/ Tokyo, Japan (Sept 2005)**
- Invited Lecture, TWAS General Assembly Egypt (2005)
- **Conferred fellowship of West Bengal Academy of Science & Technology (2005)**
- **Sir Edward Melbary Memorial oration, CDRI, Lucknow (2006)**
- Foundation Day Lecture, IARI (2007)
- National Science Day Lecture, CSIR Institutes, Lucknow (2007)
- Gold & Silver Trophy & Gold Medal for exception caliber and outstanding performance in the area of Biological Sciences “Rising Personalities of India Award” awarded by International Penguin Publishing House for the year 2007.
- **Adhar Chandra Mookerjee Award, Calcutta University (2009)**
- Foundation Day Lecture, Indian Institute of Integrative Medicine, Jammu (2010)
- Dr J N Baruah award lecture, Baruah Memorial Trust, Assam (2010)
- Annual Day Lecture, National Botanical Research Institute, Lucknow (2010)
- Foundation Day Lecture, NEERI, Nagpur (2011)
- CSIR Foundation Day Lecture, SMCRI, Bhavnagar (2011)
- Foundation Day Lecture, Tezpur University (2012)
- Foundation Day Lecture, Kalyani University (2014)

RECOGNITION

General President: Indian Science Congress (2003-2004)

Chairman Recruitment and Assessment Board (RAB), CSIR (2003-2006)

Chairman Integrated Long Term Programme (ILTP), Department of Science & Technology, Government of India (served)

General President: Society of Biological Chemists (2000)

Member Scientific Advisory Committee appointed by Prime Minister of India (served)
Member Steering Committee on Science & Technology for the formulation of Tenth Five Year Plan constituted by the Planning Commission (served)
Member Governing Body, Council of Scientific and Industrial Research (served)
Member Steering Committee on Biotechnology of several State Governments, e.g. Maharashtra, Orissa, Madhya Pradesh and West Bengal.

Fellow (Honorary) West Bengal Academy of Science and Technology

Member Steering Committee, National Bioresource Board

Council Member: Indian National Science Academy (INSA) (served)

Vice-President: National Science Academy (served)

Member Science and Technology Forum, Japan

Member Indian Council of Medical Research (ICMR) 5 Years Review Committee (2005)

Visitor's Nominee (President of India): Delhi University, Central University of Hyderabad, North-Eastern University.

Chairman : Biomedical Board, Indian Council of Medical Research (ICMR)

Chairman : Scientific Advisory Committee (SAC), Vector Control Research Centre, Puducherry (2007 onwards)

Chairman : Scientific Advisory Committee (SAC), National Institute of Cholera and Enteric Diseases, Kolkata (2005-2007)

Member : Governing Body, Indian Council of Medical Research (ICMR) 2007-2010.

Member : Governing Body, Indian Council of Agricultural Research (ICAR) 2007-2010

Member : ICAR Society 2007-2010

Member : General Body, Birla Institute of Science & Technology (2007-)

Chairman : Review Committee IARI (performance of last 5 years)

Member : Board of Governors of ICFAI University, Dehradun

Chairman: Board of Governors, NIT, Silchar

Member: Board of Governors, IIT, Guwahati

Member: Governing body, CSIR Academy (2011-)

Professor Emeritus: Jawaharlal Nehru University

Member, Scientific Advisory Committee of Cabinet (Govt. of India) appointed by Prime Minister (Served)

Immediate Past President: The National Academy of Sciences, India (2009-11).

Member: Board of Governors, Academy of Scientific and Innovative Research (AcSIR)

Chaired and held membership of several academic and professional bodies constituted by the Council of Scientific & Industrial Research; Department of Science & Technology; Department of Biotechnology; Indian Council of Medical Research and several Universities.

HONORS RECEIVED

Conferred D.Sc. (Honoris Causa) of University of Burdwan for life-long contribution in the field of life sciences, (2003)

Conferred D.Sc. (Honoris Causa) of Bidhan Chandra Krishi Vishwavidyalaya (2004)

Conferred D.Sc. (Honoris Causa) of Vidhya Sagar University (2008)

Conferred D.Sc. (Honoris Causa) of Pandit Ravi Shankar Shukla University, Raipur (2017).

Research achievements and impact on society

Professor Asis Datta is a distinguished scientist in the field of molecular biology of plant and yeast. His scientific contributions have been in vital areas of concern to the society such as food and nutritional security, control of **immunity deficiency related diseases** and use of **GM crops**. His research on the virulence factors and pathogenicity of *Candida albicans* opened up the possibility of designing a therapy to combat **candidiasis**. People infected with AIDS virus are inevitably predisposed to a secondary *C. albicans* infection, which accounts for a dominant share of the lethality. **Prof Datta's research first time demonstrated that the catabolic pathway of N-acetylglucosamine (GlcNAc) in *Candida albicans* is an important facet of its pathogenicity** (cell wall maintenance, morphogenesis and virulence) and genes responsible for GlcNAc catabolism are arranged as a cluster. Besides diagnosis, the present research of Professor Datta endeavors to pinpoint to a maximum possible extent the basic factors responsible for the virulence exhibited by *C. albicans*. **It is true for other diseases e.g. *Vibrio cholera***. This is required to design the therapy or possible drug to combat the disease, **candidiasis** and other diseases in a more effective way than the general therapeutics, which are presently followed.

The recent achievements in plant biotechnology has opened immense possibilities and scope for obtaining crops with better quality and improved productivity and scope for nutritional and food security worldwide. For more than a decade, Prof. Datta's laboratory has been involved in the area of nutritional genomics.

1. Seed protein gene *AmA1*

For the first time, Prof. Datta's laboratory has identified and cloned *AmA1* from Amaranth that encodes a 35-kDa protein rich in essential amino acids. *AmA1* composition was found to be even better than that recommended by the World Health Organization for a protein to be optimum for human nutrition. In order to enhance protein content in potato, we used *AmA1* gene. The field performances of *AmA1* potatoes at different agro-climatic conditions were found to be consistent over the years. The agronomic performance and nutritional equivalence study of the GM potato varieties (seven Indian commercial potato cultivars) have been proved its safe consumption.

2. To increase shelf life of fruits and vegetables

Two N-glycan processing enzymes α -mannosidase (α -Man) and β -D-N-acetylhexosaminidase (β -Hex) were targeted in Prof. Datta's laboratory to control fruit softening during ripening. We cloned and patented *a-Man* and *B-Hex* genes. Silencing of *a-Man* and *B-Hex* genes in transgenic tomato plants using RNAi technology resulted in enhanced fruit shelf life, due to the reduced rate of fruit softening. Transgenic tomatoes were found to be ca. 2.5- and 2-fold firmer in the case of α -Man and β -Hex suppressing RNAi lines, respectively. Transgenic tomatoes exhibited ca. 40-45 days of prolonged shelf life whereas no negative effect on phenotype, including yield and nutritional value. Further, results revealed a stable and heritable transfer of character and now we have successfully conducted 7th generation field trials

3. To increase nutritional quality and stress tolerance of crops.

Prof. Datta's laboratory has generated tomato with improved drought tolerance and resistance to phytopathogenic fungus *S. sclerotiorum* along with the increased iron and polyunsaturated fatty acid (PUFA) content by expressing a single gene encoding C-5 sterol (*FvC5SD*) desaturase from an edible Mushroom *Flammulina velutipes*. The fourth generation field trials of these transgenic lines are under progress. We are now using this strategy for other economically important crops like rice, soybean, etc.

4. Fungal resistance and oxalate free transgenic tomatoes, soya bean and grass pea.

Some crops e.g. tomato, soya bean and grass pea are rich sources of vitamin, minerals and proteins but they contain oxalic acid as a nutritional stress factor because oxalate chelates calcium and precipitation of calcium oxalate in kidney leads to hyperoxaluria and destruction of renal tissues which leads to Nephrolithiasis due to the formation of calcium oxalate crystals in kidneys. Prof. Datta's laboratory has discovered OXDC; the gene encoding oxalate decarboxylase which has opened up a new area of research, which is relevant to human health

(a). Oxalate-free transgenic tomato

By expressing an oxalate decarboxylase (*FvOXDC*) gene into tomatoes confer fungal resistance with reduced oxalate level. The 7th field trial of oxalate-free GM tomato lines was carried out. The studies on food value, food safety, toxicity and allergenicity associated with transgenic tomatoes have been completed.

(b). Oxalate free transgenic soya bean

Prof. Datta's laboratory has developed transgenic soya bean by expressing an *FvOXDC* and reported significant reduction in oxalic acid level in soya bean seeds (up to 73%) and improved tolerance to the fungal pathogen *Sclerotinia sclerotiorum*. The transgenic soya bean plants have completed more than seven years under restricted field trial.

(c) . Transgenic *Lathyrus* without neurotoxin

Lathyrus sativus (grass pea) has high protein content, good grain yield, resistance to insects and pests. But it also contains anti-nutritional metabolite oxalic acid. Oxalic acid is also known as precursor of β -N-oxalyl-L- α , β -diaminopropionic acid (β -ODAP), a neurotoxin found in lathyrus. Prolonged consumption of grass pea causes neurolathyrism, which is characterized by spasticity of leg muscles, lower limb paralysis, convulsions and death. Prof. Datta's laboratory has developed fungal resistant transgenic grass pea by expressing *FvOXDC* with reduced oxalic acid (up to 75%) and β -ODAP (up to 73%) in grass pea. The transgenic grass pea plants have completed more than 7th years under restricted field trial.

Twenty most significant publications

1.	Datta Asis: Regulatory role of ATP on hog kidney N-acetyl-D-glucosamine -2-epimerase. <i>Biochemistry</i> 9, 3363-3370 (1970)
2	Datta Asis. , Camerini-Otero., R.D., Braunstein S.N. and Franklin R.M: Structure and synthesis of a lipid containing bacteriophage VII. Structural proteins of bacteriophage PM2. <i>Virology</i> 45, 232-239 (1971).
3	Datta Asis and Franklin R.M: DNA -dependent RNA polymerase is associated with bacteriophage PM2. <i>Nature</i> 236, 131-133 (1972)
4	Datta Asis. , de Haro, C., Sierra, J.M. and Ochoa, S: Mechanism of translational control by hemin in reticulocyte lysate. <i>Proc. Natl. Acad. Sci. USA</i> 74, 3326-3329 (1977)
5	Reddy A.S.N., Raina A., Gunnery S and Datta Asis: Regulation of protein synthesis in plant embryo by protein. phosphorylation I. Purification and characterization of a cAMP -independent protein kinase and its endogenous substrate <i>Plant Physiol. USA</i> , 83, 988-993 (1987)
6	Toro N., Datta Asis. , Yanofsky, M and Nester, E.W. Role of the Overdrive Sequence in T-DNA border cleavage in Agrobacterium. <i>Proc. Natl. Acad. Sci.USA</i> ,85,8558-8562 (1988).
7	Ganesan K., Banerjee A and Datta Asis. Molecular Cloning of secretory acid proteinase Gene from <i>Candida albicans</i> and its use as a species specific probe. <i>Infection and Immunity, USA</i> , 59,2972-2977,(1991).
8	Mehta A and Datta Asis. Oxalate decarboxylase from <i>Collybia velutipes</i> : Purification, Characterization cDNA cloning. <i>J. Biol. Chem.</i> 266, 23548-23553 (1991)
9	Raina A and Datta Asis. Molecular cloning of a gene encoding a seed specific protein with nutritionally balanced amino acid composition from <i>Amaranthus</i> , <i>Proc.Natl. Acad. Sci .USA</i> 89 11774 - 11778 (1992)
10	Natarajan K and Datta Asis. Molecular cloning and analysis of the NAG1 cDNA coding for glucosamine-6-phosphate deaminase from <i>Candida albicans</i> . <i>J. Biol. Chem.</i> 268,9206-9214.(1993)
11	Malathi K., Ganesan K and Datta Asis. Identification of a putative transcription factor in <i>Candida albicans</i> that can complement the mating defect of <i>Saccharomyces cerevisiae</i> ste12 mutants. <i>J.Biol.Chem.</i> 269. No.37,22945-22951 (1994).
12	Jyothi M.K., Jamaluddin MS., Natarajan K., Kaur D and Datta Asis. Analysis of the Inducible GlcNAc Catabolic Pathway Gene Cluster in <i>Candida albicans</i> : Discrete GlcNAc Inducible Factors interact at the Promoter of <i>NAG1</i> . <i>Proc. Natl.Acad.Sci, USA</i> 97, 14218-14223 (2000)
13	Kesarwani M., Azam M., Natarajan K., Mehta A., and Datta Asis. Oxalate Decarboxylase from <i>Collybia velutips</i> : Molecular Cloning and Its Over Expression to Confer Resistance to Fungal Infection in Transgenic Tobacco and Tomato. <i>J.Biol.Chem.</i> 275, No.10, 7230-7238(2000)
14	Chakraborty S., Chakraborty N and Datta Asis. Increased nutritive value of transgenic potato by expressing a non-allergenic seed albumin gene from

	<i>Amaranthus hypochondriacus Proc. Natl. Acad. Sci,USA, 97, 3724-3729 (2000).</i>
15	Chakraborty S., Sarma B., Chakraborty N and Datta Asis. Premature termination RNA polymerase II mediated transcription of a seed protein gene in <i>Schizosaccharmyces pombe</i> . <i>Nucleic Acid Research</i> , 30, 2940-2949 (2002).
16	Meli VK., Ghosh S. , Prabha TN., Chakraborty N., Chakraborty S and Datta Asis. Enhancement of fruit shelf life by suppressing N-glycan processing enzymes. <i>Proc. Natl. Acad. Sci, USA</i> , 107 (6):2413-8, (2010)
17	Chakraborty S., Chakraborty N., Agrawal L Ghosh S., Narula K., Shekhar S., Prakash S Prakash S., Naik., Pande P.C., Chakraborti S.K and Datta Asis. Next generation protein rich potato by expressing a seed protein gene AmA1as a result of proteome rebalancing in transgenic tuber. <i>Proc. Natl. Acad. Sci, USA</i> ,107(41): 17533-8, (2010)
18	Ghosh S., Rao KH., Sengupta M., Bhattacharya SK and Datta Asis. Two gene clusters co-ordinate for a functional N-acetylglucosamine catabolic pathway in <i>Vibrio cholerae</i> . <i>Mol Microbiol</i> . Jun;80(6):1549-60 (2011).
19	Kamthan A, Kamthan M, Azam M, Chakraborty N, Chakraborty S, Datta, Asis. Expression of a fungal sterol desaturase improves tomato drought tolerance, pathogen resistance and nutritional quality. <i>Scientific Reports (Nature publication)</i> 2: 951 (2012).
20	Kumar A, Ghosh S, Bhatt DN, Narula A, Datta Asis. <i>Magnaporthe oryzae</i> Aminosugar Metabolism is Essential for Successful Host Colonization. <i>Environ Microbiol</i> . Jan 12. doi: 10.1111/1462-2920.13215. (2016).

Publications - last five years

- Kamthan M, Mukhopadhyay G, Chakraborty N, Chakraborty S, **Datta Asis**. Quantitative proteomics and metabolomics approaches to demonstrate N-acetyl-d-glucosamine inducible amino acid deprivation response as morphological switch in *Candida albicans*. *Fungal Genet Biol.* 49(5):369-78 (2012)
- Wardhan V, Jahan K, Gupta S, Chennareddy S, **Datta Asis**, Chakraborty S, Chakraborty N. Overexpression of CaTLP1, a putative transcription factor in chickpea (*Cicer arietinum L.*), promotes stress tolerance. *Plant Mol Biol.* 79(4-5):479-493 (2012).
- Jaiswal DK, Ray D, Subba P, Mishra P, Gayali S, **Datta Asis**, Chakraborty S, Chakraborty N. Proteomic analysis reveals the diversity and complexity of membrane proteins in chickpea (*Cicer arietinum L.*). *Proteome Sci.* 2;10(1):59 (2012)
- Kamthan A, Kamthan M, Azam M, Chakraborty N, Chakraborty S, **Datta Asis**. Expression of a fungal sterol desaturase improves tomato drought tolerance, pathogen resistance and nutritional quality *Scientific Reports* 2:951 (2012)
- Kamthan Ayushi, Kamthan Mohan, Chakraborty Niranjana, Chakraborty Subhra & **Datta Asis**. A simple protocol for extraction, derivatization, and analysis of tomato leaf and fruit lipophilic metabolites using GC-MS. *PROTOCOL EXCHANGE*. COMMUNITY CONTRIBUTED. doi:10.1038/protex.2012.061 (2012)
- Kamthan M, Kamthan A, Ruhela D, Maiti P, Bhavesh NS, **Datta Asis**. Upregulation of galactose metabolic pathway by N-acetylglucosamine induced endogenous synthesis of galactose in *Candida albicans*. *Fungal Genet Biol.* 54:15-24 (2013)
- **Datta Asis**. Genetic engineering for improving quality and productivity of crops. *Agriculture & Food Security*, 2:15 (2013).
- Rao KH, Ghosh S, Natarajan K, **Datta Asis**. N-acetylglucosamine kinase, HXK1 is involved in morphogenetic transition and metabolic gene expression in *Candida albicans*. *PLoS One* 8(1):e53638 (2013).
- Ghosh S, Singh UK, Meli VS, Kumar V, Kumar A, Irfan M, Chakraborty N, Chakraborty S, **Datta Asis**. Induction of senescence and identification of differentially expressed genes in tomato in response to monoterpene. *PLoS One*. 30;8(9):e76029 (2013)
- Chakraborty N, Ghosh R, Ghosh S, Narula K, Tayal R, **Datta Asis**, Chakraborty S. Reduction of oxalate levels in tomato fruit and consequent metabolic remodeling following overexpression of a fungal oxalate decarboxylase. *Plant Physiol.* 162(1):364-78 (2013)
- Narula K, **Datta Asis**, Chakraborty N, Chakraborty S. Comparative analyses of nuclear proteome: extending its function. *Front Plant Sci.* 26;4:100 (2013)

- Subba P, Kumar R, Gayali S, Shekhar S, Parveen S, Pandey A, **Datta Asis**, Chakraborty S, Chakraborty N. Characterization of the nuclear proteome of a dehydration-sensitive cultivar of chickpea and comparative proteomic analysis with a tolerant cultivar. *Proteomics*.13(12-13):1973-92 (2013)
- Agrawal L, Narula K, Basu S, Shekhar S, Ghosh S, **Datta Asis** Chakraborty N, Chakraborty S. Comparative proteomics reveals a role for seed storage protein AmA1 in cellular growth, development, and nutrient accumulation. *J Proteome Res* 12(11):4904-30 (2013)
- Subba P, Barua P, Kumar R, **Datta Asis**, Soni KK, Chakraborty S, Chakraborty N. Phosphoproteomic dynamics of chickpea (*Cicer arietinum* L.) reveals shared and distinct components of dehydration response. *J Proteome Res*. 12(11):5025-47 (2013)
- Ghosh S, Singh UK, Meli VS, Kumar V, Kumar A, Irfan M, Chakraborty N, Chakraborty S, **Datta Asis**. Induction of senescence and identification of differentially expressed genes in tomato in response to monoterpene. *PLoS One*. 8(9):e76029 (2013)
- Jaiswal DK, Ray D, Choudhary MK, Subba P, Kumar A, Verma J, Kumar R, **Datta Asis**, Chakraborty S, Chakraborty N. Comparative proteomics of dehydration response in the rice nucleus: new insights into the molecular basis of genotype-specific adaptation. *Proteomics*.13(23-24):3478-97 (2013).
- Ghosh S, Hanumantha Rao K, Bhavesh NS, Das G, Dwivedi VP, **Datta Asis** N-acetylglucosamine (GlcNAc)-inducible gene GIG2 is a novel component of GlcNAc metabolism in *Candida albicans*. *Eukaryotic Cell*. 13(1):66-76 (2014).
- Rao KH, Ruhela D, Ghosh S, Abdin MZ, **Datta Asis**. N-acetylglucosamine kinase, HXK1 contributes to white-opaque morphological transition in *Candida albicans*. *Biochem Biophys Res Commun*.28;445(1):138-44 (2014).
- Kamthan M, Nalla, VK, Ruhela D, Kamthan A, Maiti, P and **Datta Asis**. Characterization of a putative spindle assembly checkpoint kinase Mps1, suggests its involvement in cell division, morphogenesis and oxidative stress tolerance in *Candida albicans* .*PLoS One* Jul 15;9(7) (2014).
- Irfan, M., Ghosh S., Kumar V., Chakraborty N, Chakraborty S, **Datta Asis**. Insights into transcriptional regulation of β -D-N-acetylhexosaminidase, an N-glycan -processing enzyme involved in ripening -associated fruit softening. *Journal of Exptl. Botany*, 2014 Nov;65(20):5835-48
- Natarajan K and **Datta Asis**. Gene Transcription- Chapter No.65 in Textbook of Biochemistry, Biotechnology, Allied & Molecular Medicine, under Section VIII, Human Genetics, Biochemical Basis of Inheritance, Expression of Genetic Information, Genetic Engineering, Prentice Hall of India pp 798-808 (2015)
- Tyagi R.K and **Datta Asis**. Translation of Genetic Message- Chapter No.66 Textbook of Biochemistry, Biotechnology, Allied & Molecular Medicine, under Section VIII, Human Genetics, Biochemical Basis of Inheritance, Expression of Genetic Information, Genetic Engineering, Prentice Hall of India, pp809-819 (2015)

- Ghosh S and **Datta Asis**. Agricultural Biotechnology for Food Sufficiency And Benefit to Human Health - Chapter No. 72 in Textbook of Biochemistry, Biotechnology, Allied & Molecular Medicine, under Section VIII, Human Genetics, Biochemical Basis of Inheritance, Expression of Genetic Information, Genetic Engineering, Prentice Hall of India pp877-896 (2015).
- Ayushi Kamthan, Chaudhuri, A., Kamthan M and **Datta Asis**. Small RNAs in plants: Recent development and application for crop improvement. *Frontiers in Plant Science*, Apr 2;6:208. (2015)
- Ghosh S, Rao KH and **Datta Asis**. Metabolite Identification in *Candida albicans*. *Protocol Exchange*. doi:10.1038/protex.2015.038 Published online 2 June 2015
- Ruhela D., Kamthan M., Saha P., Majumdar S., Datta K., Abdin M and **Datta Asis**. *In vivo* role of *Candida albicans* B-hexosaminidase (HEX1) in carbon scavenging. *Microbiology Open*. . Oct;4(5):730-42 (2015)
- Kamthan, A., Kamthan, M., Kumar, A., Sharma, P., Ansari, S., Thakur, S.S., Chaudhuri, A and **Datta Asis**. A Calmodulin like EF hand protein positively regulates oxalate decarboxylase expression by interacting with E-box elements of the promoter. *Scientific Reports* Oct 12;5:14578. doi: 10.1038/srep14578(2015)
- **Datta Asis**. N-acetylglucosamine catabolism: Unique side of sugar sensing. *Biochemistry & Analytical Biochemistry*, Vol 4, issue 3, 189 doi (2015).
- Maiti, P., Ghorai P Ghosh S., Kamthan, M Rakesh K Tyagi, RK and **Datta Asis**. Mapping of functional domains and characterization of the transcription factor Cph1 that mediate morphogenesis in *Candida albicans*. *Fungal Genet Biol* 83, 45-57 (2015)
- Kumar V., Irfan M., Ghosh S., Chakraborty N., Chakraborty S & **Datta Asis**. Fruit ripening mutants reveal cell metabolism and redox state during ripening. *Protoplasma*. Mar;253(2):581-94 (2016)
- Kumar A, Ghosh S, Bhatt DN, Narula A, **Datta Asis**. *Magnaporthe oryzae* Aminosugar Metabolism is Essential for Successful Host Colonization. *Environ Microbiol*. 18(8):2768. doi: 10.1111/1462-2920.13443. Sep 2016.
- Irfan M, Ghosh S, Meli VS, Kumar A, Kumar V, Chakraborty N, Chakraborty S, **Datta Asis**. Fruit Ripening Regulation of α -Mannosidase Expression by the MADS Box Transcription Factor RIPENING INHIBITOR and Ethylene. *Front Plant Sci*.;7:10. doi: 10.3389/fpls.2016.00010. 21 Jan 2016.
- Kumar V, Chattopadhyay A, Ghosh S, Irfan M, Chakraborty N, Chakraborty S and **Datta Asis**. Improving nutritional quality and fungal tolerance in soybean and grass pea by expressing an oxalate decarboxylase. *Plant Biotechnology Journal* doi: 10.1111/pbi.12503 pp. 1-12. (2015).

- Kamthan, A., Chaudhuri, A and **Datta Asis**. Genetically modified (GM) crops: milestones and new advances in crop improvement. *Theo Applied Genetics*;129(9):1639-55. doi: 10.1007/s00122-016-2747-6. Sep 2016.
- Rao KH, Ghosh S, **Datta Asis**. Env7p Associates with the Golgin Protein Imh1 at the trans-Golgi Network in *Candida albicans*. *mSphere.*;1(4). pii: e00080-16. doi: 10.1128/mSphere.00080-16. eCollection Aug 3, 2016.
- Kamthan M and **Datta Asis**. Candidiasis: A yeast infection caused by *Candia albicans*-Chapter 22 in Recent Advances in Communicable and Non-communicable diseases. Eds. Professor Asis Datta & Professor VP Sharma, The National Academy of Sciences, India (NASI), Capital Publishing Co, New Delhi, pp366-384 (2016)
- Kamthan A, Kamthan M and **Datta Asis**. Biotechnology for drug discovery and crop improvement *Nucleus* DOI 10.1007/s13237-016-0192-1 published online December 23, 2016.
- Kamthan A, Kamthan M, Datta A. Expression of C-5 sterol desaturase from an edible mushroom in fission yeast enhances its ethanol and thermotolerance. *PLoS One.*;12(3):e0173381. doi: 10.1371/journal.pone.0173381, March 9, 2017.
- Irfan M and **Datta Asis**. Improving food nutritional quality and productivity through genetic engineering. *International Journal of Cell Science & Molecular Biology*. Review Article Vol.2, issue 1 doi: 10.19980/CRDO1.2017-2555576., April 2017