Bio-data: Som Dutt

Name	**:**	**Dr. Som Dutt**
Date of Birth	:	08.06.1975
Designation	:	Senior Scientist
Sex (M/F)	:	Male
Department	:	Biotechnology Division
Institute/University	:	CSIR-Institute of Himalayan Bioresource Technology (CSIR-IHBT), Ministry of Science and Technolohy, Govt. of India
Contact	:	Email:sd_bio@yahoo.com; somdutt@ihbt.res.in Mobile: 098160 09994

Education: (Post-Graduation onwards & Professional Career)

S.No.	Institution Place	Degree Awarded	Year	Field of study
1	Indian Agricultural Research Institute, New Delhi, India-110012	Ph. D.	2003	Plant Biochemistry, Molecular Biology & Biotechnology, Genetics
2	Indian Agricultural Research Institute, New Delhi, India-110012	M. Sc.	1998	Plant Biochemistry, Molecular Biology & Biotechnology.

Position and Employment (Starting with the most recent employment)

Sl No.	**Institution Place**	**Position**	**Department (research area)**	**From (Date)**	**To (date)**
1	CSIR- Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur-176 061 (HP)	Senior Scientist	Biotechnology Division (Plant Molecular Biology)	28.06.2010	Till date
2	CSIR- Institute of Himalayan Bioresource Technology (CSIR-	Scientist	Biotechnology Division (Plant Molecular	28.06.2006	28.06.2010

	IHBT), Palampur-176 061 (HP)		Biology)		
3	CSIR- Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur-176 061 (HP)	Scientist-IV (1)	Biotechnology Division (Plant Molecular Biology)	28.06. 2002	28.06.2006

National/ International Awards

National (India)

- Junior Research Fellowship (awarded by Indian Council of Agricultural Reaseach - New Delhi) during M.Sc (1996-1998).
- Junior Research Fellowship (awarded by Council of Scientific and Industrial Research- New Delhi) during Ph.D (1998-2000).
- Senior Research Fellowship (awarded by Council of Scientific and Industrial Research- New Delhi) during Ph.D (2000-2002).
- Qualified ICAR, National Eligibility Test in 1999
- Qualified CSIR, National Eligibility Test (NET) in 1998

International

- Awarded one year Rothamsted International Fellowship for the year 2003-2004 by Rothamsted Internationals, Rothamsted Research, Harpenden, United Kingdom.

Publications:

Authors and title of the publication	**Journal, publication year**	**Impact factor (JCR, 2011)**
1. Gangola MP, Parkash J, Ahuja PS, **Dutt S*** (2013). Components of antioxidant system of *Picrorhiza kurrooa* exhibit different spatio-temporal behavior.	Mol Biol Rep. 2013. 40(12):6593-6603. *DOI 10.1007/s11033-013-2772-3* (IF 2.5)	**2.5**
2. Arun Kumar, **Som Dutt**, Ganesh Bagler, Paramvir Singh Ahuja, Sanjay Kumar. Engineering a thermo-stable superoxide dismutase functional at sub-zero to >50 °C, which also tolerates autoclaving.	*Scientific Reports* **(Nature publishing Group)**, 2012, 2:387	**2.9**
3. Harsharan Singh, Parul Gahlan, **Som Dutt**, Paramvir Singh Ahuja and Sanjay Kumar.Why uproot *Picrorhiza kurrooa*, an endangered medicinal herb?	**Current Science 2011,** 100: 1059-1059	**0.935**
4. Amit Bafana, **Som Dutt**, Arun Kumar, Sanjay Kumar, and Paramvir S. Ahuja. The basic and applied aspects of superoxide dismutase	***Journal of Molecular catalysis B: Enzymatic,***. 2011: 68:129–138	**2.735**
5. Amit Bafana, **Som Dutt**, Sanjay Kumar, and Paramvir S. Ahuja. Superoxide dismutase: an industrial perspective	***Critical Reviews in Biotechnology*, 2011** 31:65-76	**6.472**
6. Tabasum Kawoosa, Harsharan Singh, Amit Kumar,	***Functional and Integrative***	**2.842**

	Sunil Kumar Sharma, Kiran Devi, **Som Dutt**, Surender Kumar Vats, Madhu Sharma, Paramvir Singh Ahuja, Sanjay Kumar. Light and temperature regulated terpene biosynthesis: hepatoprotective monoterpene picroside accumulation in *Picrorhiza kurrooa*.	***Genomics***. 2010: 393-404	
7.	Kashmir Singh, Arti Rani, Asosii Paul, **Som Dutt**, Robin Joshi, Ashu Gulati, Paramvir S Ahuja and Sanjay Kumar. Differential display mediated cloning of anthocyanidin reductase gene from tea (*Camellia sinensis* (L.) O. Kuntze) and its relationship with concentration of epicatechins.	***Tree Physiology***.2009 29:837-846.	**2.876**
8.	Amardeep Singh Virdi, Aditi Thakur, **Som Dutt**, Sanjay Kumar and Prabhjeet Singh. A sorghum 85 kDa heat stress-modulated protein shows calmodulin-binding properties and cross-reactivity to anti *Neurospora crassa*-Hsp 80 antibodies.	***FEBS Letters***. 2009. 583:767-770.	**3.538**
9.	Yogavel M, Mishra PC, Gill J, Bhardwaj PK, **Dutt S**, Kumar S, Ahuja PS, Sharma A. Structure of a superoxide dismutase and implications for copper-ion chelation.	***Acta Crystallogr D Biol Crystallogr***.2008. 64: 892-901.	**12.619**
10.	Kasana RC, Salwan R, Dhar H, **Dutt S**, Gulati A. A rapid and easy method for the detection of microbial cellulases on agar plates using Gram's iodine.	***Current Microbiology***.2008**.** 57:503–507.	**1.815**
11.	Ndiko N Ludidi, Till K Pellny, Guy Kiddle, Christelle Dutilleul, Karin Groten, Philippus D. R. Van Heerden, **Som Dutt,** Stephen J. Powers, Peter Römer & Christine H. Foyer. Genetic variation in pea (*Pisum sativum* L.) demonstrates the importance of root but not shoot C/N ratios in the control of plant morphology and reveals a unique relationship between shoot length and nodulation intensity**.**	***Plant Cell and Environment***. 2007 30:1256-1268.	5.215
12.	**Dutt, S**, Yadav OP, Kapoor HC Lodha, ML. Possible mechanism of action of antiviral proteins from the leaves of *Chenopodium album* L.	***Indian J. Biochemistry and Biophysics***. 2004. 41: 29-33.	**0.579**
13.	**Dutt S**, Narwal S, Kapoor HC, Lodha, ML. Isolation and characterization of two protein isoforms with antiviral activity from *Chenopodium album* L. leaves.	***J. Plant Biochemistry and Biotechnology***. 2003 12: 117-122.	**0.523**
14.	**Dutt S**, Balasubrahmanyam A, Lodha ML. Purification and partial characterization of antiviral proteins from *Chenopodium album* L. Leaves.	***J. Plant Physiol***. 2000. 156: 808-810.	**2.791**

Posters presented

- Tabasum Kawoosa, Harsharan Singh, Sunil Kumar, Amit Kumar, Kiran Devi, **Som Dutt**, Madhu Sharma, Surinder Kumar Vats, Sanjay Kumar and Paramvir Singh Ahuja (2009). Studies on regulation of genes of mevalonate and non-mevalonate pathway in *Picrorhiza kurrooa* Royle ex Benth. National Symposium on Plant Propagation, Conservation, Modification and Characterization & 30th Annual Meeting of Plant Tissue Culture Association (India). Institute of Himalayan Bioresource Technology, Palampur, April 3-4, 2009. Abstract no. 115. Page no. 71.

- Arun Kumar, Pardeep Kumar Bhardwaj, **Som Dutt**, Sanjay Kumar, Paramvir Singh Ahuja (2009). Bioprospecting western Himalyan flora for thermostable Cu/Zn superoxide dismutases. National Symposium on Plant Propagation, Conservation, Modification and Characterization & 30th Annual Meeting of Plant Tissue Culture Association (India). Institute of Himalayan Bioresource Technology, Palampur, April 3-4, 2009. Abstract no. 102. Page no. 64.

- Cloning and characterization of genes involved in picrosides biosynthesis in *Picrorhiza kurrooa* Royle Ex Benth. Harsharan Singh, Amit Kumar, Tabasum Kawoosa, **Som Dutt**, Sanjay Kumar* and Paramvir S. Ahuja. 2008. 3rd J&K state science congress, 26-28 Feb, 2008. pp 190.

- Molecular regulation of picrosides biosynthesis in *Picrorhiza kurrooa* Royle Ex Benth. Tabasum Kawoosa, Amit Kumar, Harsharan Singh, Sunil Kumar Sharma, Kiran Devi, **Som Dutt**, Sanjay Kumar*, Madhu Sharma, Paramvir S. Ahuja. 2008. 3rd J&K state science congress, 26-28 Feb, 2008. pp 191.

Seminars/Conferences/workshops/Refresher Courses etc.

- Attended "Bangalore Bio India 2011" conference held during 4th to 6th May, 2011, at Bangalore, Karnatka
- Attended "Frontiers of Science" conference held at Kolkata, during 2nd and 3rd March, 2011.
- Attended and made an **oral presentation** entitled **"Copper-zinc superoxide dismutase based electrochemical biosensor for determination of superoxide radical".** in "National Bilingual Conference on Agrionics and Food Processing instrumentation (NCAFPI-2010)" held at Central Scientific Instruments Organization (CSIO), Chandigarh during 26.09.2010 to 28.09.2010.
- Attended "International Convention, Kangra Tea Vision-2020 and Kangra Tea Expo-2007" held at Palampur, India. November 27-28, 2007.
- Attended "**Q-Tof Micro Biomolecule operator training course"** held at **Waters Corporation, Manchester, U.K.,** during 26th to 29th March, 2007.
- Attended **workshop on Analysis and Interpretation of Microarray Experiments,** held at **Rothamsted Research, Harpenden, UK** during Sept 20-21, 2004.
- Attended a training course on "**DNA based marker technologies and its application**" sponsored by Department of Biotechnology, Government of India, organized by The Energy and Resources Institute, New Delhi, during 21st to 31st July, 2003.
- Attended a "**Short term training course on Bioinformatics**, sponsored by Department of Biotechnology, Government of India, organized by Institute of Himalayan Bioresource Technology, Palampur, during 23rd to 26 June 2003.
- Attended workshop on "**Use of GCG Wisconsin Package (Collection of Databases)"** held at International Centre for Plant Genetic Engineering (ICGEB) New Delhi, during 11th and 12th March 2003.
- **Faculty Member:** M. Sc. Agric. Biotech Programme, Himachal Pradesh Agricultural University, Palampur, Himachal Pradesh.

Invited Lectures delivered

- Delivered an invited lecture entitled "Systems biology approaches for better understanding and utilization of plant bioresources" in national seminar on plant biodiversity, retrospect and prospects organised by Department of Botany, Govt Post graduate college, Dharamshala, Distt. Kangra, Himachal Pradesh, during February 25-26, 2012.

- Delivered an invited lecture entitled "Biotechnology: platform for sustaining mankind and nature" in Bioscience Division, Govt. College Dharmshala, H.P., on 29th October, 2010, organized under DBT sponsored star college project scheme.

- Delivered an invited lecture entitled "Functional genomics, proteomics and metabolomics: relevance to plant biotechnology" in Biotechnology Division, Panjab University, Chandigarh", organized by Panjab University, Chandigarh on 12th March, 2010.

- Delivered an invited lecture in "National Workshop on R-DNA Technology", organized by Department of Biotechnology, Govt. College, SAS Nagar (Mohali), Chandigarh during 11th to 24th May, 2009.

Students guided/ co-guided

M.Sc. student

- Mr Prakashjyoti Kalita, M.Sc. Student, Agricultural Biotechnology Division. HPKVV, Palampur, was **guided** who was awarded M.Sc. Degree in 2012 (27th June, 2012). He worked on *Picrorhiza kurrooa* a medicinal plant with the thesis entitled "Studies on the response of proteome of *Picrorhiza kurrooa* Royle ex Benth. to environmental cues"".

- Mr. Manu Pratap (admission No. A-2006-30-02), M.Sc. Student, Agricultural Biotechnology Division. HPKVV, Palampur, was **guided** who was awarded M.Sc. Degree in 2008 (19th December, 2008). He worked on antioxidant system of *Picrorhiza kurrooa* plant with the thesis entitled "Molecular studies on antioxidant system of *Picrorhiza kurrooa* Royle ex Benth".

- Mr. Mr. Rajash Koul (admission No. A-2006-30-08), M.Sc. Student, Agricultural Biotechnology Division. HPKVV, Palampur, was **co-guided** who was awarded M.Sc. Degree in 2009. He worked on Tea transgenic with the thesis entitled "Transgenic integration, expression and inheritance in tea plants".

Students being Guided/ Co-guided

M.Sc. student:

- Two M.Sc. Students are being **guided** at present
- One M.Sc. Student is being **co-guided** at present

Ph.D. students:

- One Ph. D Student are is **guided** at present
- Two Ph.D students are being co-guided at present

Teaching

Two following courses offered to post-graduate students of Agricultural Biotechnology Division, HPKVV, Palampur are being taught being taught by me.

1. **Fundamentals of Molecular Biology** (Since 2005)
2. **Plant Metabolic Engineering** (Since 2008)

Following five courses are being taught by me (since 2011) to the Ph.D students of AcSIR:

1. **Protein science and proteomics** (Course Coordinator)
2. **Gene-Environment interaction** (Course Coordinator)
3. **Biology of Macromolecules** (Team member)
4. **Plant-environment Interaction** (Team member)
5. **Biotechniques** (Team member)

Research Projects

SNo	Title of Project	My role (PI/Co-PI)	Funding agency, duration amount (in Lakhs)
	Ongoing Research Projects		
1	Exploration for doubling the number of proteins synthesized by a plant species: Why only ATG is translation start codon? Can we make other existing codon(s) to act as translation start codon(s)?	**PI**	**CSIR,** (CSIR-EMPOWER): Duration; Aug-2010-Aug. 2012; **50.00**
2	Exploration for making plants survive, develop and multiply under dark condition	**PI**	**CSIR,** (CSIR-EMPOWER): Duration; Aug-2010-Aug. 2012; **50.00**
	Completed Research Project		
4	Developing formulation for improvement of food quality by lowering the level of reactive oxygen species	Co-PI	**DBT,**09/02/2008-09/01/2011; Extended upto Feb 2012 **50.42**
	Pathway engineering and systems biology approach towards homologous and heterologous expression of high-value phytoceuticals (artemisinin, taxanes, picrosides, morphine, withanolides	Co-PI	CSIR,04/01/2007-03/31/2012; **450**
	Climate Change and Adaption of Species complexes	Co-PI	**CSIR**, 04/10/2007-03/31/2012
1	Molecular cloning & characterization of regulatory genes involved in picrosides metabolism in *Picrorhiza kurrooa*	Co-PI	**DBT,** 03/01/2006-02/28/2009; **54.2**

Signature

Place:
Date