CURRICULUM - VITAE

SATWINDER SINGH MARWAHA

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4. Designation

Professor of Food Processing & Technology

5. Qualification:

1979-1981 – Ph.D. **Punjab Agricultural University, Ludhiana (India)**
Major subject: Microbiology
Minor subject: Biochemistry
Supporting subject: Genetics & Plant Pathology.
Field of Research: Food and Fermentation Technology / Industrial Microbiology.

1975-1977 – M.Sc. **Punjab Agricultural University, Ludhiana (India)**
Major subject: Microbiology
Minor subject: Biochemistry
Supporting subject: Genetics & Plant Pathology.
Field of Research: Environmental Microbiology

1973-1975 – B.Sc. **Panjab University, Chandigarh** – S.D. Govt. College, Ludhiana (India) in Biological Sciences (Botany, Zoology & Chemistry).

1971 - Hr. Sec.-I Punjab School Education Board, Mohali (Science Stream)

6. Awards:

Conferred with STATE AWARD by Govt. of Punjab in year 2003 for promoting **Science & Technology**

7. Scholarships / Fellowships

Merit Scholarships 1971

University Scholarship in Ph.D	1979
DAE, BARC's Fellowship in Ph.D.	1980
Commonwealth Post-Doctoral Scholarship	1982

8. Field of Specialization:

Food & Fermentation Technology / Industrial Biotechnology / Environmental Biotechnology

9. Positions held & Experience

Assistant Professor	P.A.U. Ludhiana	1983-87
Reader in Biotechnology	P.U. Patialá	1987-94
Professor	P.U. Patiala	1994-97
Chairman	Department of Biotechnology, P.U. Patiala.	1991-97
Director (Biotechnology)	PSCST	1997 – Sept. 2006
Chief Executive Officer,	PBTI	2005 - Sept. 2006 (Officiating-dual responsibility) Sept. 2006 – Sept. 2016
Professor	CUPB	October 2016- Continuing

10. Professional Assignments

Junior Dairy Bacteriologist,	Composite Milk Plant, Ludhiana.	1978-79
Pool Scientist (CSIR)	Department of Microbiology	1982
Post-Doctoral Fellow	University of Birmingham, U.K.	1982-83
Visiting Scientist	Thapar Corporate Research & Development Centre, Patiala.	1989

11. Experience

I. ADMINISTRATIVE EXPERIENCE: More than 18 years.

(A) Since October 2016 working as **Professor of Food Processing in the Centre for Applied Agriculture (CAA).** Also entrusted with the responsibility of the chairman of the CAA and Centre of Instrumentation laboratory (CIL). As Chairman of CAA running MSc Food Science & Technology and MBA Agribusiness programmes.

(B) Since September 2006 to September 2016 worked as **Chief Executive Officer** of **Punjab Biotechnology Incubator** and entrusted with the responsibility to setup and operate the Biotechnology Incubator jointly funded by DBT, GOI & GOP. The "Facilities for Quality Testing & Certification" of Agri produce / produce including processed food, as one of the Service Facility

sanctioned under Incubator Project has been setup and made operational from 1st May 2007 in a transit rented premises at SCO:7&8, Phase-V, SAS Nagar (Mohali). The other activities of the Incubator as per the mandate of the project are:

1. Training and Dissemination of information on Quality and Food Safety aspects to producers, processors, consumers and industry.
2. Domain Specific Research & Development

The complete facilities of Biotech Incubator shall be setup and made operational in the Knowledge City, Sector -81, SAS Nagar (Mohali). The process of transfer of 3 acres of land in the Knowledge City to develop and establish the infrastructure of Punjab Biotechnology Incubator has been taken up with Punjab Govt. and is likely to be completed shortly.

B) Before being seconded to PBTI as Chief Executive Officer, worked as **Director (Biotechnology)**, **Punjab State Council for Science, & Technology, Chandigarh for Nine (09) years** and was responsible for promotion of Biotechnology sector in the State. As Director (Biotechnology), PSCST implemented several projects for validation of technologies in the area of agriculture and industrial Biotechnology as well as implemented projects for the empowerment of rural women and educated un-employed youth of the State.

C) From 1991 to 1997 for six (06) years worked as **Chairman, Department of Biotechnology, Punjabi University, Patiala** and successfully run two postgraduate programmes for Human Resource Development in the area of Biotechnology and Microbial & Food Technology. The curriculum of both the programmes included 6 to 8 weeks industrial training. The students of the two programmes run at Punjabi University, Patiala had been doing summer training in the leading Biotechnology industries of the State and adjoining areas. Most of the students passed out from the two programmes were getting placed in the leading industry of the region through campus interviews.

D) Shouldered the responsibility of **Executive Director, PSCST** in May 2002, June 2004 and July & August 2007.

II. TEACHING EXPERIENCE - More than 15 years

A). Teaching Assignments

Institution/ University	Programme	Courses taught
i. Regular Faculty Member		
P.A.U. Ludhiana	**Undergraduate**	Food Microbiology Dairy Microbiology General Microbiology
	Post-Graduate	Advances in Fermentation Tech. Microbial Physiology

		Industrial Microbiology Environmental Microbiology Energy from Organic Residues Biogas and Biological Waste Treatment. Laboratory Techniques in Microbiology
P.U. Patialá	**Under-Graduate** (B Pharmacy)	Microbiology & Immunology
	Postgraduate-Graduate (M.Sc Biotech)	Enzyme Technology Microbial Technology General Microbiology Environmental Biotechnology Molecular Biology & Biotechnology Fermentation & Food Technology Bioprocess & Biochemical Engg. Environmental & Legal Biotech.
	(M.Pharm.)	Fundamentals of Microbiology and Immunotechnology
	M.Sc. Microbial & Food Technology	Microbial Technology Dairy & Food Microbiology
	P.G. Diplomá in Microbial &	Principles of Food Processing Technology.
	Food Technology	Microbial Technology
CUPB, Punjab	M.Sc. Food Science & Technology	Food Microbiology, Enzymes & Food Processing, Sensory evaluation and quality control in food industry, Renewable Energy in Food processing and Fermentation science in food Processing

ii. Visiting Professor

T.I.E.T Patialá	**Post-Graduate** (M.E. Env. Engg.)	Sanitary Microbiology
H.P. University, Shimla	**Postgraduate** (M.Sc., Biotech.)	Fermentation Technology Environmental Biotechnology
Central University Punjab Bathinda	Assisted the University to develop / formulate courses curricula for M.Sc. Life Sciences Programme with specialization in animal sciences and Biochemistry and Microbial sciences as Member of the Board of Studies & Academic Council	

iii. Adjunct Professor

Eternal Univ. Baru Sahib	**Postgraduate** (M.Tech. Biotechnology and	Fermentation Technology

	Food Science & Technology	Microbial Biotechnology	
Panjab Univ. Chandigarh (As Guest Faculty)	**Postgraduate** (M.Sc., Biotech.)	Fermentation Biotechnology	
Banasthali Vidayapith, Banasthali (As Guest Faculty)	**Postgraduate** (M.Sc., Biotech.)	Food & Microbial Technology	

B). Curriculum Development : As Faculty Member, Member / Chairperson of Board of Studies and Member of Academic Council at the various Universities / Institutes, where the different programmes are being run.

Class	**University**	**Updation**	**System**	**Subject**	**Year**
M.Sc.	P.A.U., Ludhianá	Revision	Trimester	Microbiology	1984
M.Sc.	P.A.U., Ludhiana	New course	Semester	Microbiology	1986
M.Sc.	Punjabi Univ., Patiala	New course	Semester	Biotechnology	1987
M.Sc.	Punjabi Univ., Patiala	New course	Semester	Biotechnology	1990
M.Sc.	Punjabi Univ., Patiala	New course	Semester	Foods & Nutrition	1990
M.Sc.	Punjabi Univ., Patiala	New course	Semester	Microbial & Food Tech.	1994
Ph.D.	PAU, Ludhiana	Revision	Trimester	Microbiology	1984
Ph.D.	PAU, Ludhiana	New Course	Semester	Microbiology	1986
Ph.D.	PAU, Ludhiana	New Course	Semester	Energy Sci. & Tech.	1986
PG Diploma	P.U Patiala	New Course	Annual	Microbila &Food Tech.	1990
M.Sc.	P.U Patiala	New Course	Annual	Microbial & Food Tech.	1994
B.Sc.	MCM DAV College, Chandigarh	New course	Annual	Microbial & Food Tech.	2001
M.Sc.	MCM DAV College, Chandigarh	New course	Semester	Microbial & Food Tech.	Likely to start from the academic session 2016-17
B.Tech / M.Tech integrated programme	SGGSW, Univ.	New Course	Semester	Biotechnology	2011
B.Tech / M.Tech integrated programme	SGGSW, Univ.	New Course	Semester	Food Technology	2011
B.Tech / integrated with MBA programme	SGGSW, Univ.	New Course	Semester	Biotechnology	2011

M.Tech.	Eternal Univ. Baru Sahib	New Course	Semester	Biotechnology	2011
M.Tech.	Eternal Univ. Baru Sahib	New Course	Semester	Food Technology	2011
M.Sc.	Chandigarh University, Gharuan	New Course	Semester	Biotechnology	2012
M.Sc.	Chandigarh University, Gharuan	New Course	Semester	Food Science & Technology	2016-17
M. Pharma	Chandigarh University, Gharuan	New Course	Semester	Pharmaceutics	2016-17
Ph.D.	Chandigarh University, Gharuan	New Course	Semester	Biotechnology	2016-17
M.Sc. & Ph.D. (Life Sciences)	Central University Punjab Bathinda (CUPB)	New Course	Semester	Animal Sciences	2016-17
M.Sc. & Ph.D. (Life Sciences)	Central University Punjab Bathinda (CUPB)	New Course	Semester	Biochemistry and Microbial Sciences	2016-17

III. RESEARCH EXPERIENCE : **More than thirty (35) years.**

A). Research Work

Class	**Topic**
M.Sc	Studies on the mycoflorá of irrigation waters of the Punjab State.
Ph.D.	Utilization of dairy industry rejects for the production of vitamin B-12 by Propionibacterium spp.
Pool Scientist CSIR	Vitamin B-12 biosynthesis by immobilized Propionibacterium sp.
Post-Doctoral	Continuous ethanol production by immobilized yeast.
Visiting Scientist	Microbial enzyme production.

Research Projects:

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During the period of more than 35 years has successfully implemented various projects of industrial importance awarded by Department of Biotechnology, Government of India; Department of Science & Technology, GOI; University Grants Commission; Indian Council of Agricultural Research and All India Council of Human Resource Development as Principal / Co-

Principal Investigator. Also coordinated a number of state government funded projects.

1. **Completed Projects After Joining as Chief Executive Officer, PBTI :**

Sr. No.	Project	Funding agency
1.	Environmental Monitoring at Toansa, under EIA Project for Ambient Air Monitoring, Weather Monitoring, Stack Monitoring, Soil Sampling, Ground Water, Waste Water Sampling & Analysis	Tetra Tech, New Delhi
2.	Control of Indigenous Thermoduric Microbial Community in Barley during malting to improve the quality of Malted Barley	Glaxo SmithKline (GSK)
3.	Ambient Air Quality Monitoring for the proposed site to setup Common Municipal Solid Waste Management Facility in Village Sawara, Rasanheri & Janjheri on Landra Sirhind Road, Distt Mohali	GMADA, Mohali
4.	Ambient Air Quality Monitoring at Indian Institute of Science Education and Research (IISER), Sector - 81, Mohali	IISER, Chandigarh
5.	Ambient Air Quality Monitoring at Shri Guru Granth Sahib University, Fatehgard Sahib	SGGSU, Chandigarh
6.	BOVINE Milk – Effect of Different Treatments	Nestle, Gurgaon
7.	Scientific Evaluation of Water Purification Systems in Schools of Punjab	PSCST
8.	Validation of Test Method for Qualitative detection of Anionic Detergent in milk	NDRI, Karnal
9.	Analysis of 5500 ofTubewell and Hand Pump based water supply for heavy metals	DWSS
10.	A Pilot Study on “Nutrition and Safety Evaluation of Khichari viz a viz Shishu Aahar used for feeding children”	Nestle, Gurgaon
11.	Study the effect of treatement of vegetablses with multifunctional ozone generator on chemical contaminants pesticides and microbiogical pathogens and comparison with normal washing	Radiance Innovations Pvt. Ltd., Ludiana
12.	Quality & safety evaluation of potable water purified by different technologies	Indo-canadian water technologies pvt ltd., chandigarh
13.	Status of Industrial Pollution Control (Large, Medium & Small) in Punjab	PPCB

14.	Analysis of 7646 samples of Tubewell and Hand Pump based water supply for heavy metals & basic parameters	DWSS
15.	Collection & Analysis of 478 water samples of R.O. Treated Water	DWSS
16.	Validation of Strip based tests developed at NDRI for detection of Neutralizer, Urea, Glucose & Hydrogen Peroxide in Milk	NDRI, Karnal
17.	India Method Harmonization for Nutrient analysis in Infant Formula & Adult Nutritional product (Phase-I)	M/s Abbott Nutrition, USA
18.	" Milk Metabolomics based characterization of indigennops, exotic and crossbred Cow"	NBAGR
19.	Canal based water supply schemes for the presence of pesticides	DWSS
20.	Providing O & M Services for Running of Regional Advanced Water Testing Lab (RAWTL)	DWSS
21.	Providing Consultancy Services for getting NABL Accreditation for the Regional Advance Water Testing Laboratory	DWSS
22.	Preparation of DPR for setting up of Comprehensive testing of facilities for Honey & Processed Food Products at Village Chuharwali; Jallandhar	Markfed, Chandigarh
23.	Advisory Services for Setting Up Operationilization & getting up NABL Accreditation for Food, Drug Laboratory, FDA Punjab	Deptt. of Punjab Health & Family Welfare, FDA Punjab
24.	Validation of Himedia (make multiparameter field test kit for chemical analysis and single parameter filed test kit for bacteriological analysis)	M/s Himedia
25.	Providing Consultancy services for designing and procurement of Modular laboratories furniture in the Food and Drug Testing Laboratory of FDA, Punjab	FDA, Punjab
26.	Providing O&M Services for Running of Regional Advanced Water Testing Lab (RAWTL), Mohali	DWSS, Punjab
27.	Providing Consultancy Services for NABL Accreditation of Regional Advanced Water Testing Lab (RAWTL), Mohali and DWSS, State Lab, Patiala	DWSS, Punjab
28.	Providing consultancy services to food & drug administration, punjab for setting up of food and drug testing laboratory at kharar, sas nagar	FDA, Punjab

29.	Providing Consultancy Services For Designing And Procurement Of Modular Laboratory Furniture In The Food And Drugs Testing Laboratories Of Fda, Punjab	FDA, Punjab

2. Projects coordinated before joining as Chief Executive Officer (CEO), PBTI as Principal and Co-Principal Investigator are :

Sr. No.	Title of the project	Funding agency
1.	Neem Project Phase-II – production and promotion of Neem Based Pesticides as Environment Friendly Biodegradable Alternative to Chemical Pesticides	Ministry of Chemical & Fertilizers, GOI
2.	Cultivation and value addition through post harvest processing of Bio-resources (medicinal, aromatic and horticulture crops)	Department of Biotechnology (DBT), Govt. of India (GOI)
3.	Promotion of Solid Waste Management through Vermi-composting and demonstration of production of Pleurotus	Department of Biotechnology (DBT), Govt. of India (GOI)
4.	Management of Congress Grass (Parthenium hysterophorus) through Vermiculture Technology	Department of Science and Technology (DST), Govt. of India (GOI)
5.	Bio-Management of sullage ponds in rural areas	Govt. of Punjab
6.	Wetland Technology as a community waste water treatment system	CIDA (Canada)
7.	Feasibility study for implementation of SUTRA Package in Punjab	Department of Science and Technology (DST), Govt. of India (GOI)
8.	Survey to assess prevalence of genetic disorders and awareness among rural women regarding their causative factors and prevention	Department of Science and Technology (DST), Govt. of India (GOI)
9.	Development of continuous system for the removal of heavy metals from industrial effluents	University Grant Commission (UGC)
10.	Isolation, characterization and applications of bacterial lectins	University Grant Commission (UGC)
11.	Genetic improvement of Zymomonas mobilis for ethanol production and temperature tolerance	University Grant Commission (UGC)
12.	Use of immobilized cell technology for methane generation from the pre-hydrolysate / black liquor	Ministry of Non Conventional Energy Sources (MNES), Govt. of India
13.	Research on recycling of effluents of the agro-based industries funded by ICAR	Indian Council of Agriculture Research (ICAR), Ministry of Agriculture, Govt. of India
14.	Promotion of diversification of agriculture in Punjab	Govt. of Punjab

3. Following Projects were formulated and submitted for Consideration before relinquishing the charge of CEO, PBTI

Sr. No.	Title of the project	Funding agency
1.	Development and Validation of Analytical Method for the Estimation of Melamine in Milk and Milk products using LCMS-MS technique	Food Safety and Standard's Authority (FSSAI)
2.	Spatial distribution of uranium and associated water quality parameters in Ground Water / Drinking Water resources of three districts (Sri Ganganagar, Bikaner & Churu) of Rajasthan	Bhabha Atomic Research Center (BARC)
3.	Capacity building for the chemists working in water testing laboratories of DWSS	World Bank through DWSS
4.	Surveillance monitoring of treated water quality for assessing the functioning of specialized water purification technologies	
5.	Advisory support to advance water testing lab setup by DWSS for analysis of uranium and heavy metals.	
6.	Gap analysis of water testing laboratories of DWSS	
7.	Status of Pharmaceuticals in drinking water	
8.	Improvement in efficiency of Effluent Treatment Plant	Indian Acrylics Limited

C). Research **Supervision**

Research Students guided

Class/ Degree	Number of students
M.Sc.	18
Ph.D.	12
M.Tech	5

B). Developmental **Projects –**
Setting up of Biotechnology Incubator in Biotechnology Park in Punjab funded by **DBT & GOP**.

The facilities for Quality Testing and certification of Agri produce/ products including processed food has been setup in a transit temporary premises at Mohali and the same are operational for the users from **1st May 2007.** Since, the operationalization of the facilities for Quality Testing and Certification following recognitions have been secured:

- Recognized as Scientific & Industrial Research Organization (SIRO) by

- Department of Scientific & Industrial Research (DSIR)
- Notified as State Laboratory for the testing of Water and Waste Water
- Assessment of PBTI's laboratory for NABL accreditation by a team of assessors has been carried on 13 & 14th December 2008 and the laboratory is likely to be accredited shortly.
- Recognition as Nodal Laboratory for Water Quality Audit under Rural Water Supply Scheme by Govt. of Punjab – Under Process
- Notified National Referral lab (NRL) by MOEF, GOI for LMO/GMO detection

ii. **Setting up of Agri Food Biotechnology Cluster in Knowledge City in SAS Nagar (Mohali)** funded by **DBT & GOP**.

For the promotion of Biotechnology sector associated with the development and establishment of Agri Food Biotechnology Cluster including Institute of Agri-Food Biotechnology (NABI), Bio-processing units, Biotechnology Park and Biotechnology Incubator in Knowledge City being developed in Sector-81, SAS Nagar (Mohali), from the conceptualization / formulation of the project.

iii. **Establishment of Knowledge City at SAS Nagar (Mohali)** funded by Ministry of Human Resource of Development **(MHRD)**, Govt. of India, Department of Science & Technology **(DST)**, Department of Biotechnology (DBT), Ministry of Science & Technology, Govt. of India and **Private Groups**.

Providing inputs as and when needed for the establishment of the various institutions being setup in the Knowledge City. The Institutions being setup in the Knowledge City include Indian Institute of Science Education & Research (IISER), Institute of Nano Science & Technology (INST) and Indian School of Business (ISB) including Agri Food Biotechnology Cluster.

14. New Developmental initiatives

Provided inputs on the strengths and needs of the state in the area of Science & Technology to the Chief Minster, Punjab for his meeting the Sh. Kapil Sibal, Minister, Science, Technology and Ocean, Govt. of India on 2nd July 2007. Govt. of India has principally approved to setup four Centers of Excellence, two star colleges and other Science & Technology Related Institutions/projects in Punjab. Provided inputs as and when required to formulate DPRs for approval by concerned Departments of Govt. of India. Detailed project proposals for the following projects submitted to concerned department/ministries of Govt. of India are principally approved:

- Center of Excellence of application of Genetic Engineering in medical sciences.

- Center of Excellence for Bio-pesticide production and applications
- Center of Excellence of medicinal plants and aromatic
- Center of Excellence for pilot testing and validation of technologies for commercialization.
- Five colleges in the State have been identified to be upgraded as star colleges.

15. Facilitator for Establishing Linkages

Facilitated the signing of following agreements for the establishment of Institution: Industry and Industry: Industry linkages to promote Biotechnology Sector in Punjab

- Joint collaboration agreement between **PSCST, Chandigarh** & **Beckons Industries Ltd. Mohali** to register and commission a private public company – Punjab Biotechnology Park Ltd. (PBPL) for the development of Biotechnology Park in Punjab at Village Behra, Teh. Dera Bassi, Distt. Mohali.
- Agreement between **Ag-West Bio Inc, Canada** and **Punjab Biotechnology Park Ltd. Mohali, Punjab (India)** to develop Biotechnology Park at village Behra, Tehsil Dera Bassi, Distt Mohali.
- MOU between **Fytokem, Canada** and **Unimarck Pharma Ltd. Chandigarh** for exploring the market for cosmoceutical produced by Fytoken Canada and setting up the production unit jointly in Biotechnology Park being developed at Dera Bassi.
- Agreement between **PSCST, Chandigarh** and **M/s Sunstar Overseas Ltd.** for the marketing of Amla based products produced under project "Cultivation and value addition through post harvest processing of Bio-resources (medical, aromatic and horticulture crops).

16. Professional Trainings

- Post-Doctoral Research/Training in the field of Industrial Biotechnology/Food Technology under the supervision of Prof. J.F. Kennedy, an Eminent Biotechnologist at the University of Birminghám England (Oct., 1982-Sept., 1983) as Commonwealth Scholar.

- Participated in the faculty improvement programme on System Approach organised by the Department of Electrical Engineering, PAU, Ludhianá (5th-22nd Dec., 1984).

- Attended Workshop-cum-training on Micro computers, organized by the School of Energy Studied for Agriculture, PAU, Ludhianá (25-26th Nov., 1985).

- Attended "Continuing Education Programme on Project Management from June 07-11, 1999 at TTTI, Chandigarh".

- Attended Training Programme on Laboratory Quality Management Systems and Internal Audit as per IS/ISO/IEC 17025:2005 at NITS, Noida from 25th to 28th November 2008.

17. Memberships of Associations/Societies/Board of Studies etc.

i. Life member of Association of Microbiologists of India.

ii. Life member of Yeast Biotechnology group of India.

iii. Member (former) of Coordinated faculty of School of Energy Studies for Agriculture, PAU, Ludhiana.

iv. Member (Former) of Advisory Committee for the Development of Biotechnology Laboratory at Thapar Institute of Engineering & Technology, Patiala.

v. Chairman (Former) and member of the Board of Studies of M.Sc. Biotechnology and Microbial & Food Technology Programmes at the Department of Biotechnology, Punjabi University, Patiala.

vi. Member (Former) of the Board of studies of M.Sc. Food & Nutrition programme at Punjabi University, Patiala.

vii. Member (Former) of the Faculty of Life Science at Punjabi University, Patiala.

viii. Member (Former) of the Academic Council of Punjabi University, Patiala.

ix. Member (Former) of the Board of Studies for Home Science programme, P.U, Patiala.

x. Member (Former) of Board of Studies for Agriculture programme, P.U., Patiala.

xi. Member (Former) of the Research Board of School of Biotechnology, TCRDC, Patiala.

xii. Member (Former) Research Award Committee, Faculty of Life Sciences, P.U. Patiala.

xiii. Advisory member of International Group of Bio-active Carbohydrates and Proteins, Uni. of Birmingham, England.

xiv. Councilor / Consultant of Institute of Environment, Luckhnow.

xv. Member of Board of Studies, School of Biotechnology, Thaper Institute of Engineering and Technology, Patiala.

xvi. Member (Former) of Board of Studies, Department of Biotechnology, Himachal Pradesh University, Shimla.

xvii. Member (Former) of Research Degree committee (RDC), Department of Microbiology, Guru Nanak Dev University, Ámritsar.

xviii. Member of Institutional Bio-Safety Committee of PAU, Ludhiana

xix. Member (Former) of the Core Committee of Food Technology at Sant Longowal Institute of Engineering & Technology, Longowal.

xx. Member (Former) of Board of Studies of Food Engineering at Sant Longowal Institute of Engineering & Technology, Longowal.

xxi. Expert Member (Former) of the Faculty of Life Sciences, Guru Nanak Dev University, Amritsar.

xxii. Chairman (Former) of Northern India Chapter of All India Biotech Association (AIBA), New Delhi.

xxiii. Member of Advisory Committee for DBT Manpower Development Programme of Banasthali Vidyapith Banasthali, Rajasthan.

xxiv. Member (Former) of Advisory Committee for DBT Funded M.Sc Biotechnology Programme at Thapar Institute of Engineering & Technology (TIET), Patiala.

xxv. Adviser Member for the Biotechnology Programme of UIET. Panjab University, Chandigarh.

xxvi. Member of Board of Governors of Science Technology Entrepreneur Park (STEP), TIET, Patiala

xxvii. Member in the "Research Advisory Board" in Pushpa Gujral Science City, Chandigarh

xxviii. Life member of Indian Association for Air Pollution Control (AAPC), New Delhi.

xxix. Member of Reader Panel of "Nature".

xxx. Member of State Expert Appraisal Committee, Govt. of Punjab

xxxi. Member of the Academic Council of Punjab Technical University, Jalandhar.

xxxii. Member of the Scientific panel on Genetically modified organisms and foods by Food Safety and Standards Authority of India (FSSA) GOI.

xxxiii. Member of the Core Advisory Committee by Sree Guru Granth Sahib University, Fatehgarh Sahib

xxxiv. Chairman of Research Advisory Committee of Shaheed Udham Singh College of Engineering and Technology, Tangori

xxxv. Members of the Academic Council of Eternal University, Baru Sahib, HP

xxxvi. Member of the Advisory Committee to SLIET, Longowal

xxxvii. Member of the Board of Studies of Biotechnology & Pharmaceutical Sciences Chandigarh University, Punjab

xxxviii. Member of the Academic Council of Chandigarh University, Punjab

xxxix. Member of the Board of Studies of Life Sciences

xl. Member of the Academic Council of Central University Punjab, Bathinda

18. Professional recognition:

I Chairman / Co-Chairman / Raporteur / Panel Member / Organizing Member / Sectional Secretary

i. **Co-chairman -** National Seminar on Biotechnology, Punjabi University, Patiala, 1989.

ii. **Raporteur & Panel Member** - International Symposium on Energy management, New Delhi, 1990

iii. **Organizing Member** - Symposium on Commercialization of Biotechnology, TCRDC, Patiala, 1992.

iv. **Chairman -** Workshop on Techniques of Molecular Biology & Biotechnology in Pharmaceutical Sciences & Drug Research Conference of Indian Pharmacological Society, P U Patiala, 1995.

v. **Chairman -** Molecular Biology Session in Conference of Indian Pharmacological Society, P.U., Patiala, 1995.

vi. **Chairman –** Session on Heavy Metal Biosorption in National Symposium on Role of Microbes in the Management of Environmental Pollution" organised by Deptt. of Microbiology, Panjab University, Chandigarh on 13th Nov.,1998.

vii. **Sectional Secretary -** Biochemistry, Biophysics and Molecular Biology Section, 83rd Indian Science Congress, P.U., Patiala, January 3-8, 1996.

viii. **Chairman -** Technical Session-IV in First University Industry interaction Meet on Lipase research : Needs and components organized by Department of Microbiology, University of Delhi South Campus, New Delhi on 21st May, 1999.

ix. **Chairman -** Northern Chapter, Alì India Biotech Association (AIBA), New Delhi.

x. **Guest of Honour** - Foundation day of College of Basic Sciences & Humanities Punjab Agricultural University, Ludhiana on 20th September 2008.

xi. **Panelist** - Panel discussion on "Future Development and Research Agenda" for the International Conference on Climate Change Biodiversity & Food Security in the South Asian Region held at Chandigarh on 3rd & 4th November 2008

xii. **Panelist** - Panel discussion on "Diversification of Agriculture Vs Food Security" in an International Conference held on 30th November 2008 at Chandigarh during Agro-Tech 2008 Chandigarh

xiii. **Member** of Local Organizing Committee by 7th Bt Pacific Rim Conference to be held at New Delhi

xiv. **Member** of the National Advisory Committee for National Seminar on Chemical Industry in India, Opportunities & Challenges to be held at SLIET, Longowal.

xv. Nominated as **Member** of Governing Council of Sardar Swaran Singh National Institute of Renewable Energy (SSS-NIRE), Kapurthala (Punjab) w.e.f 21.06.2011 for three years.

xvi. **Member** of Forum of Industry Academia Interaction of Central University Punjab, Bathinda.

xvii. **Member** of Council of Industry Academia Interaction of Central University Punjab, Bathinda.

xviii. **Moderator** for Food Section at Industry Academia Interaction organized by Panjab University, Chandigarh to develop concept paper.

Note: During the last 3 years, chaired number of technical sessions in the National / International Symposia / Conferences.

II. Professional Recognition - Member of Board of Directors

i. Director, (Former) Punjab Biotechnology Park Limited.
ii. Director, (Former) Glow Biotech Limited.
iii. Director, (Former) Prathista Industries Limited.
iv. Director, (Former) Prathista Biotech Limited.
v. Adviser, (Former) Prathista Industries Limited.
vi. Director, (Former) Cherry Biotech Limited.
vii. Advisory Member, International Group of Bio-active Carbohydrates and Proteins, Birmingham, U.K.

viii. Visiting Scientist (Former) – Thapar Corporate Research & Development, Patiala
ix. Member – Governing Body of STEP, TIET, Patiala
x. Member – State Expert Appraisal Committee, Punjab
xi. Member – Reader Panel of “Nature”
xii. Member – Scientific Panel on Genetically modified organisms and foods by Food Safety and Standards Authority of India
xiii. Member - Core Advisory Committee by Sree Guru Granth Sahib University, Fatehgarh Sahib
xiv. Chairman - Research Advisory Committee of Shaheed Udham Singh College of Engineering and Technology, Tangori
xv. Member – Scientific Panel on Methods of Sampling and Analysis of FSSAI, Govt. of India
xvi. Member – Central Advisory Committee (CAC) of FSSAI, GOI
xvii. Member – Committee to develop concept paper for Mid Day Meal of MHRD, GOI.
xviii. Member - Committee to issue NOC for field trials of GM crops in Punjab

19. Visits Abroad

To upgrade the skills and explore possibilities of collaboration following visits have been taken up :

i. **Canada –** Visited Canada in 2004 and 2006 to explore the avenues for the promotion of Biotechnology Sector in Punjab with Institutes / Industry collaboration.
   - **In May 2004 lead a delegation of entrepreneur from Punjab to Canada** to visit World's two most successfully operating Biotechnology Parks at Saskatoon and Qubec, which have strength in processing the agri-produce for value-addition using Biotechnological tools to produce products with applications as cosmaceutical, neutraceutical and pharmaceuticals.
   - As a member of the four member delegation lead by **Dr. M.K. Bhan, Secretary, DBT, GOI visited Montréal, Saint Hyacinth, Otawa, Waterloo, Saskatoon and Toronto** for meeting with National Research Council (NRC) and Agriculture Agri-food Canada to explore the possibilities of their participation in the establishment and development of Bio Processing Unit (BPU) which is to be developed in the Agri Food Biotechnology Cluster in Knowledge City at SAS Nagar (Mohali)

ii. **United Kingdom** - Commonwealth Post Doctoral Fellow at University of Birmingham, UK

iii. **France –** Visited Pasture Institute at Paris

iv. **Uganda** – Visited various Universities in Kampala & surrounding areas.

v. **Singapore –** Visited to attend International Water Week organized at Singapore from 22nd to 26th June 2009.

20. Citations : The research work published in International / National journals, books etc. is cited in :

i. International Journals.
ii. Review Articles.
iii. Books.
iv. R&D Journals.

21. Research Publications

i. Published more than 80 research papers and review articles in international/ national journals.

ii. Contributed 31 chapters in books published by the National and International publishing houses.

iii. Published 08 books in the areas of agriculture including agro-processing biotechnology, food biotechnology and environmental biotechnology.

22. Resource Material Published / Prepared

i. Booklet in English & Punjabi on Bio Management of Sullage ponds through Duckweed & Constructed Wetland technologies

ii. Multi-media CD for UNESCO in the current areas of biotechnology as educational module for teaching biotechnology in developing countries.

iii. Bilingual (English and Punjabi) interactive CDs containing detailed basics for use as teaching aid and technological protocols of Vermiculture biotechnology and Pleurotus cultivation.
iv. CD on the management of village ponds using duckweed / constructed wetland technologies.
v. Multimedia Educational CD on awareness of Genetic Disorders

23. COLLABORATION FOR HUMAN RESOURCE DEVELOPMENT AND R&D ACTIVITIES

Promoted collaborations for HRD and R&D in the areas relevant to the needs of the State with the following institutions:

i. Baba Farid University of Health Sciences (BFUHS), Faridkot
ii. Central University of Punjab, Bathinda (CUPB)
iii. Indira Gandhi National Open University (IGNOU)
iv. Punjab Agricultural University (PAU), Ludhiana

The list of Research Publications including Books, Research Papers, Review Articles, Chapters in Books & multimedia, teaching & technology transfer aids is as per **Appendix-I.**

(S.S. Marwaha)

Date: _____

LIST OF PUBLICATIONS

A. Books:

1. **Arora, J.K. and S.S. Marwaha**, Eds., (1995). Popular biotechnology lecture series **PSCST and Punjabi University, Patiala.**
2. **Marwaha, S.S. and J.K. Arora,** Eds, (2000) Food Processing Biotechnological Applications. **Asiatech Publishers Inc., New Delhi.**
3. **Arora, J.K., S.S. Marwaha and R. Grover;** Eds, (2002). Biotechnology in Agriculture and Environment : Status and Strategies. **Asiatech Publishers Inc., New Delhi.**
4. **Arora, J.K. and S.S. Marwaha,** Eds., (2002). Biotechnological Avenues for Entrepreneurship Development. Focus: Women & Rural Development. **PSCST, Chandigarh,**
5. **Koul, Upendra; GS Dhaliwal, S.S Marwaha and J.K. Arora**, Eds., (2002) Biopesticides and Pest Management. Vol. 1 and 2, **Campus Books International, New Delhi.**
6. **Marwaha, S.S and J.K. Arora,** Eds.,(2003) Biotechnological Strategies in Agro Processing. **Asiatech Publishers Inc., New Delhi.**
7. **Panesar. P.S., S.S. Marwaha and H. Chopra, Eds** – (2010), "Enzyme in Food Processing: Fundamentals and Applications" I**.K. International Publishing House, Pvt. Ltd. New Delhi**
8. **S.S. Marwaha and P.S. Panesar (Editors) (2013)** Biotechnology in Agriculture and Food Processing – Opportunities and Challenges by CRC Press, USA

B. Research Papers

1. **Singh, Satwinder** and H.S. Garcha, 1978. Ecological studies on the mycoflora of irrigation water of the Punjab. **Indian J. Ecol**., 5 (2) : 233-239

2. **Singh, Satwinder** and H.S. Garcha, 1980. Effect of various carbon and nitrogen sources on growth and sporulation of Absidia corymbifera. **Indian J. Mycol. Pl. Pathol**., 10 (1) :119

3. **Marwaha, S.S.**, R.P. Sethi and J.F. Kennedy, 1983. Influence of 5,6-dimethylbenzimidazole (DMB) on vitamin B biosynthesis by strains of Propionibacterium. **Enzyme Microb. Technol**., 3: 361-364

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5. **Marwaha, S.S.,** R.P. Sethi and J.F Kennedy, 1983 Role of amino acids, betaine and choline in vitamin B biosynthesis by strains of Propionibacterium. **Enzyme Microb. Technol**., 3: 454-456

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7. **Marwaha, S.S.,** J.F. Kennedy and R.P. Sethi, 1983. Vitamin B production from whey and simulation of optimal cultural conditions. **Process Biochem**. 18 (6): 24-27

8. **Marwaha, S.S.** and J.F. Kennedy, 1984. Ethanol Production from whey permeate by immobilized yeast cells. **Enzyme Microb. Technol**., 6 : 18-22

9. **Marwaha, S.S.** and J.F. Kennedy, 1984 Alchohol Production from whey permeate by immobilized and free cells of Kluyveromyces marxianus NCYC179. **Process Biochem**. 19 (april) : 79-80.

10. **Marwaha, S.S.** and R. P. Sethi, 1984. Utilization of dairy waste for vitamin B fermentation. **Agric. Wastes**, 9 (2) : 111-130

11. Gohlwar, C.S., R.P. Sethi, **S.S. Marwaha**, V.K. Sehgal and J.F. Kennedy, 1984. Gibberrellic acid biosynthesis from whey permeate and simulation of cultural conditions. **Enzyme Micro. Technol**., 7 : 164-168

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18. Tewari, H.K., **S.S. Marwaha**, J.F. Kennedy and L. Singh, 1987. Acid and enzymatic saccharification of agricultural mixed polymers for alcohol production. **Brit. Poly**. **J.** 19 : 425-428

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C. CHAPTER IN BOOKS / CONFERENCE PROCEEDINGS

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