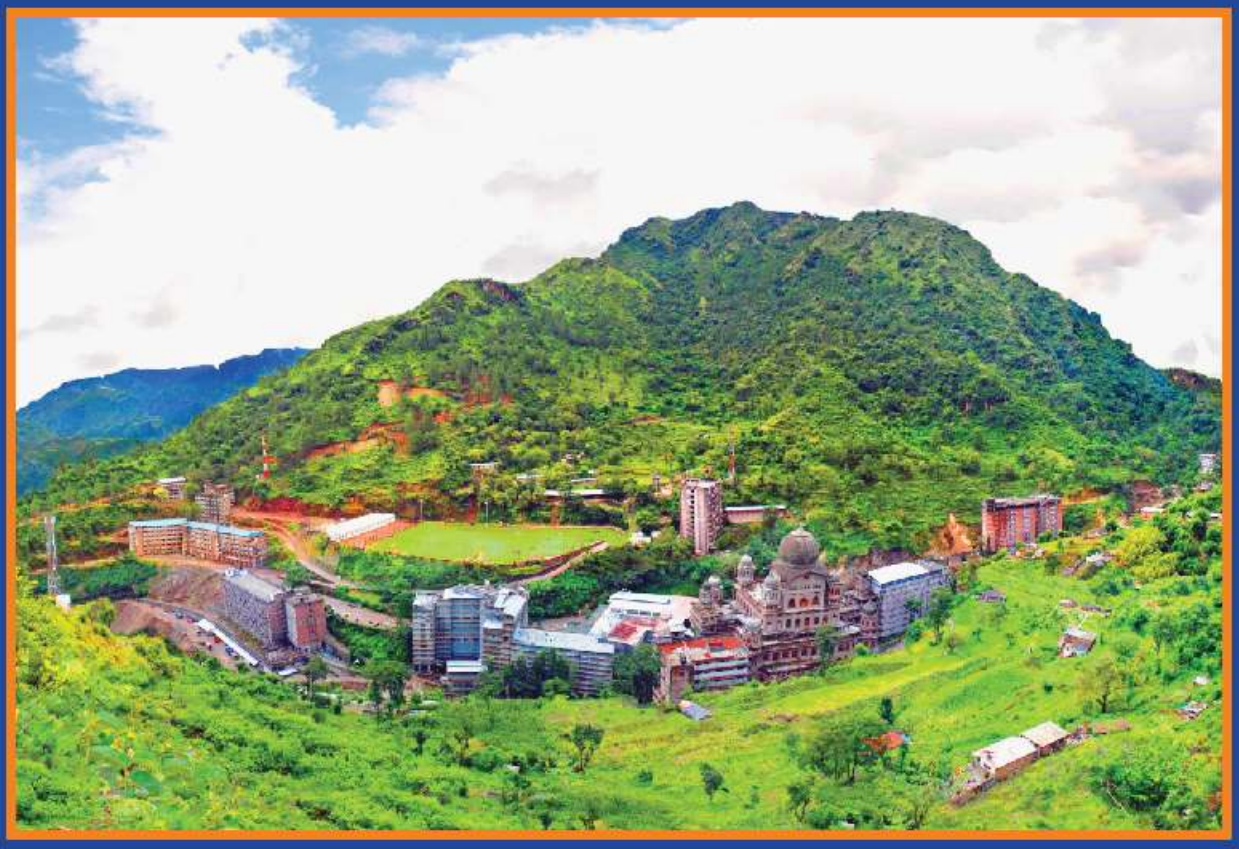
ANNUAL REPORT

2016-17



ETERNAL UNIVERSITY

Established Under the Himachal Pradesh Government Act No. 3 of 2009.
Recognized by UGC, AICTE, INC, NCTE, DSIR, DBT and DRDO

BARU SAHIB (HP)

Published By :

Eternal University

Compiled And Edited By :
Dr. H S Dhaliwal
Dr. Davinder Singh
Dr. Ajit Singh
Dr. Ramesh Arora

Design & Illustration By :
Mr. Ramandeep Singh

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BARU SAHIB, VIA RAJGARH, DISTT- SIRMOUR, HIMACHAL PRADESH -173101

+91-9816640660,9816400624,9825098720,9816441158 (Nursing), 01799-276012, Fax: 01799-276006

Website: www.eternaluniversity.edu.in E-mails: admissions@eternaluniversity.edu.in, contact@eternaluniversity.edu.in

Founders Vision

Sant Attar Singh Ji

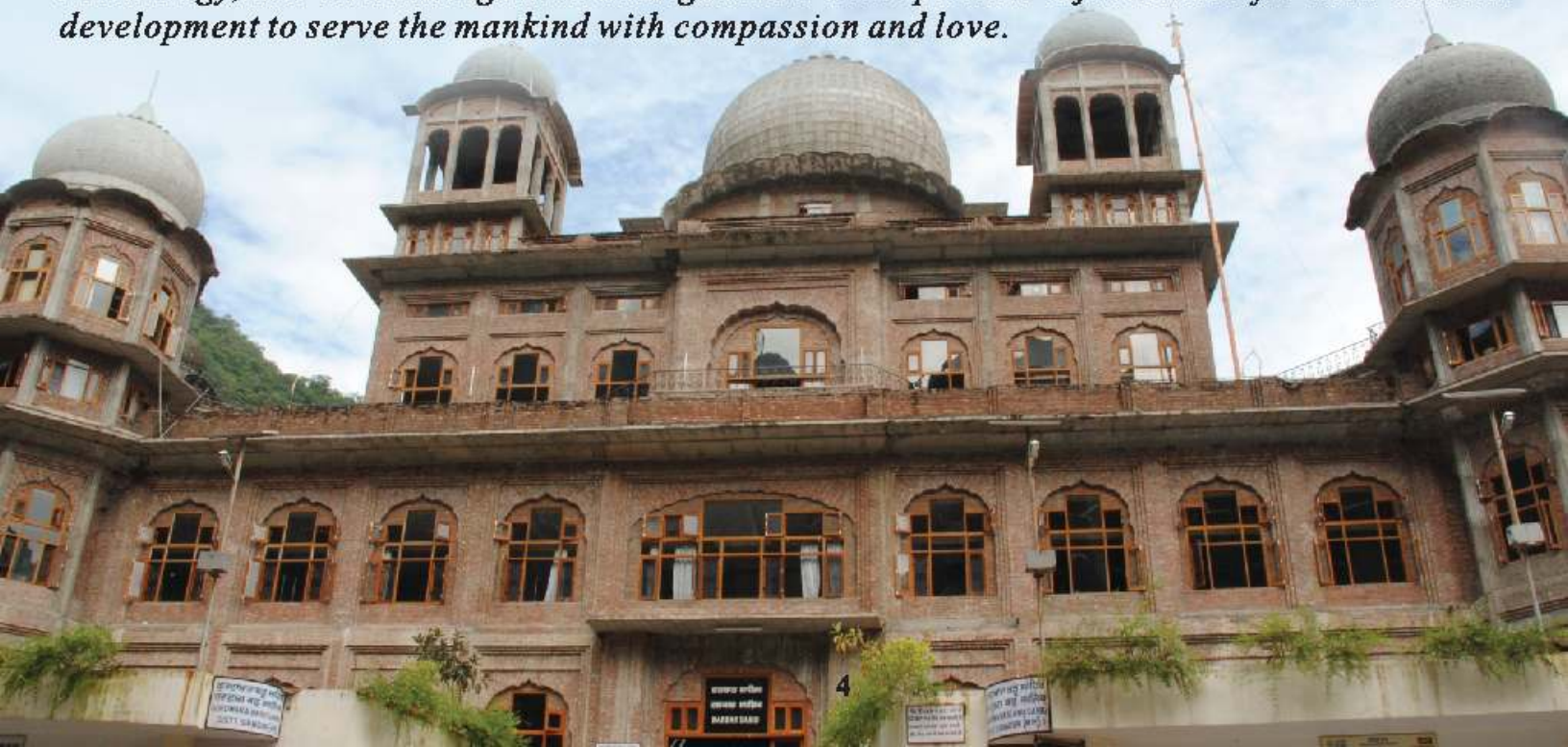
Sant Teja Singh Ji

The relatively young Eternal University with its diverse programmes, priorities, commitments, values and efforts strives to emerge as a world-class women university with its centers of excellence in science, technology, arts and management. Major emphases will be focused on developing and strengthening industrial-institution linkages and harnessing strength of its alumni for skill development, technology transfer, resources generation and employment opportunities. Its graduates engrossed with holistic development, human values, professional ethics and skills and entrepreneurship will adapt and earn confortable livelihood and serve the mankind with love and devotion for its inclusive and sustainable development as our ambassadors of universal brotherhood for world peace.

Mission

Baba Iqbal Singh Ji
Chancellor
(Retired Director Agriculture, H.P.)

To transform and empower young women talent through cutting edge education in science, technology, arts and management amalgamated with spiritual rejuvenation for their holistic development to serve the mankind with compassion and love.



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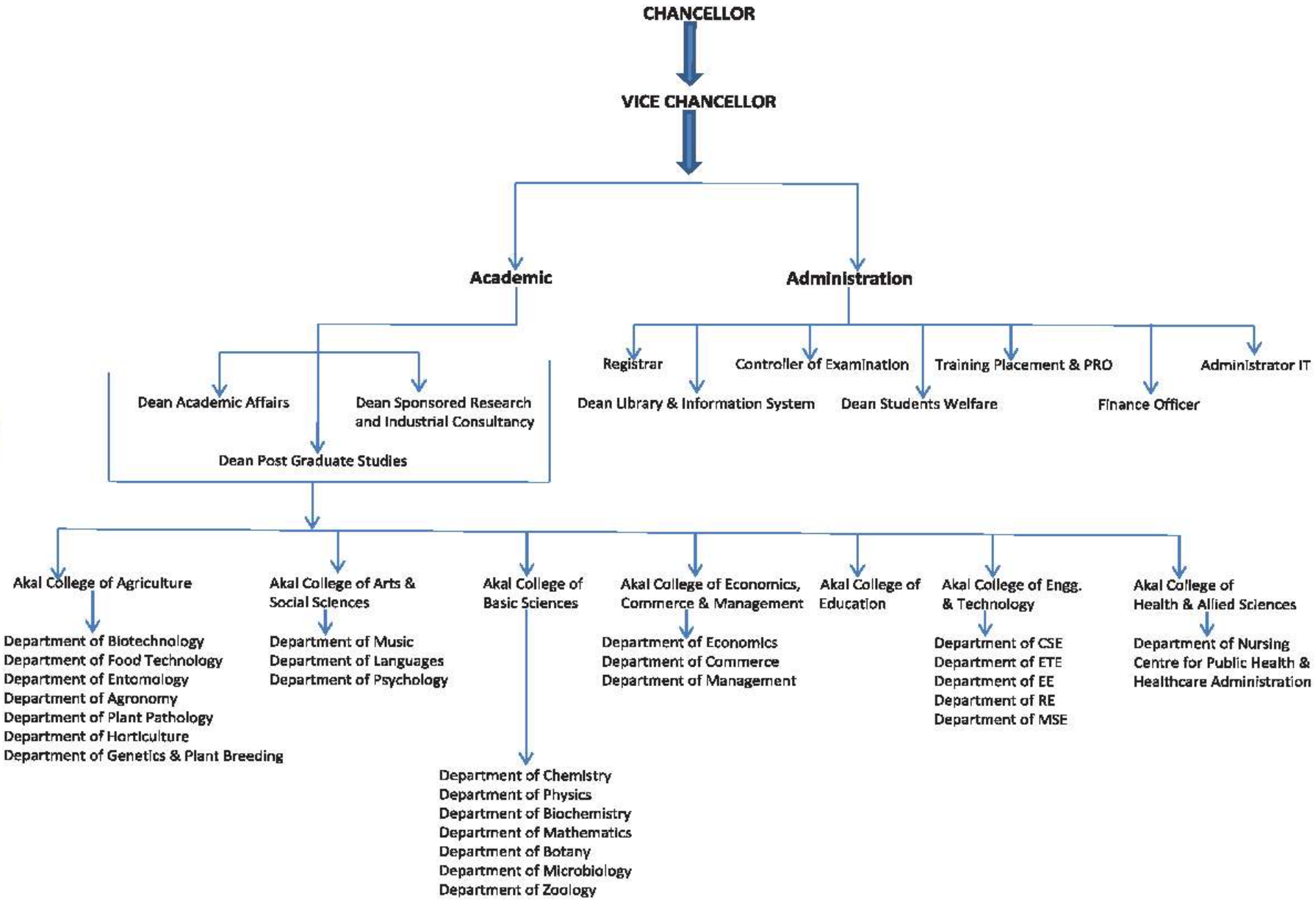
ADMINISTRATIVE SET UP OF ETERNAL UNIVERSITY



FROM THE VICE CHANCELLOR'S DESK

Dr. HS Dhaliwal
M.Sc. Plant Breeding (PAU, Ludhiana)
Ph. D Genetics (University of California, Riverside, U.S.A)
PDF (UC Riverside, U.S.A., FMI, Basel, Switzerland)
FNAAS, New Delhi

The Eternal University, Baru Sahib, established by Himachal Pradesh Government by Act No. 3 of 2009, has been offering nearly 50 academic programmes in the field of Basic Sciences, Engineering and Technology, Economics, Commerce and Management, Health and Allied Sciences including Nursing and Public Health, Agriculture, Biotechnology, Food Technology, Renewable Energy, Divine Music and Education with value based education by the highly competent, trained and experienced faculty through its seven constituent colleges. These programmes have been duly recognized by the **UGC, AICTE, INC, NCTE, DSIR, DRDO and DBT**. The Eternal University has also been granted **The Minority Educational Institution Status** by the National Commission for Minority Educational Institutions, Government of India on May 27, 2016. It is one of the first private and residential universities in northern India exclusively for the girl students providing safest, drug and pollution free environment for holistic development of its graduates.

The University has been able to get external funding of worth Rs. 3.5 crores approx. for various projects funded by DBT, DST, DRDO, MoFPI and HimCOSTE. For providing hands-on training to the students and successful implementation of the in-house and externally funded research projects the University has established more than twenty state of the art well equipped modern scientific laboratories. Due to its strategic location in the mid-Himalaya with tremendous biodiversity, the research efforts of the university are focused on exploration, improvement and exploitation of medicinal plants and functional food crops of the region to ensure food, nutrition and health security of the people of the region. The faculties and students of various colleges of the university have adopted five village Panchyats of Sirmour districts for extension services, training and transfer of latest technology among the villagers for their inclusive development.

As many as 35 new faculty members have joined different departments, thus strengthening the teaching and research programmes as well as establishing new areas of specialization in their respective fields. A major new addition is the establishment of the Akal Modern Dairy farm with 8 cross-bred cows in the Akal College of Agriculture. The faculty members have bagged 5 new competitive grants research projects in engineering (3), basic science (1) and agriculture (1) during the last year. The faculty, research scholars and PG students have published one edited book, contributed 13 chapters in edited volumes and over 100 research articles in refereed journals during 2016-17.

I am very happy to note that the faculty and staff have tried for the first time since the establishment of the university to compile the Annual Report of 2016-17 of the university in this format with some highlights of the ongoing research work and activities of various colleges of the university for sharing the same with the regulatory and administrative authorities and other stake holders of the university. The suggestions and contributions of our peer reviewers to improve this initiative in the coming years will be highly appreciated.

Governing Body

Eternal University

(World peace through value based education)

Ref No : EU/VCO/NOTFN/021 Dated :0 9th September 2015

NOTIFICATION

In pursuance of Clause 18 (i) of Eternal University (Establishment and Regulation) Act No. 3 of 2009 and Amendment Act No. 23 of 2012. The Chancellor of Eternal University is pleased to reconstitute the GOVERNING BODY of Eternal University, Baru Sahib consisting of the following members superseding the previous notification No EU/RO/NOTFN/21 dated 08th Jan 2015:-

1.	Hon'ble Baba Iqbal Singh Ji (Chancellor)	Chairman
2.	Dr. H.S. Dhaliwal (Vice Chancellor)	Member
3.	Dr. Davinder Singh (Registrar)	Member (Nominee of Sponsoring Body)
4.	Vice Chancellor of Akal University, Talwandi Sabo	Member (Nominee of Sponsoring Body)
5.	Dr. Neelam Kaur	Member (Nominee of Sponsoring Body)
6.	Dr. Jeet Singh Sandhu Deputy Director General(Crops Sciences) ICAR, Krishi Bhawan, New Delhi-110001 09582898978, Email:js_sandhuin@yahoo.com	Member (Outside Expert)
7.	Sh Kirnesh Jung Hon'ble MLA,Paonta Sahib(Vill-Ganguwala, PO:Paonta Sahib(HP)/Set No 407 JVS Shimla-04) (09816400067)Email-jungkirnesh@yahoo.com	Member (Member of State Legislative Assembly)
8.	Sh. Kishori Lal Hob'ble MLA,Baijnath(VPO-Baijnath, Kangra-176125/Set No 303, JVS Shimla-4)(09816334452 & 01894-263253)	Member (Member of State Legislative Assembly)
9.	Prof A.R.Chauhan,Pro-VC (Retd), R/o Sai Nilayam,D-25,Lane-1, Sector-2, New Shimla, Shimla-9(09882496000 & 0177-2671249) Email - anantsml@gmail.com	Member (Government Nominee)

V.P.O. - Baru Sahib, Via-Rajgarh, Distt : Sirmour, Himachal Pradesh – 173101 (India)
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E-mail : contact@eternaluniversity.edu.in, Web site: www.eternaluniversity.edu.in

Eternal University

(World peace through value based education)

10.	Dr. D.J Das Gupta (Former Principal,IGMC(Retd), A-479, Sector-4, New Shimla(09418027095) Email-djdgupta@gmail.com	Member (Government Nominee)

H.S. Dhaliwal

(Dr. H.S Dhaliwal)
Vice Chancellor
Eternal University
Baru Sahib

Board of Management

Eternal University

(World peace through value based education)

Ref No : EU/RO/NOTFN/021 Dated: 09th September 2015

NOTIFICATION

In pursuance of Clause 19 (i) of Eternal University (Establishment and Regulation) Act No. 3 of 2009 and Amendment Act No. 23 of 2012. The Chancellor of Eternal University is pleased to reconstitute the BOARD OF MANAGEMENT of Eternal University, Baru Sahib consisting of the following members superseding the previous Notification No EU/RO/NOTFN/021 dated 08th Jan 2015:

1.	DR. H.S. Dhaliwal(Vice Chancellor)	Chairman
2	Dr. Davinder Singh(Registrar)	Member Secretary
3	Dr. BS Boparai (Dean)	Member
4.	Dr. Neelam Kaur (Nominee of Sponsoring Body)	Member
5	Dr. Ajit Singh(Dean)	Member
6	Dr. Mahaveer Singh (Deptt of Physics, HP University, Shimla)(09218708512 & 0177-2830950)	Member Government Nominee
7	Sh RL Chauhan (Ex-Principal NIT),Kehan Niwas, Kelston Estate, Shimla-171001 (019724152)	Member Government Nominee
8	Sh. B.S Lamba (Nominee of Sponsoring Body)	Member
9	Dr. Jagmohan Singh Chauhan (Professor) Ex Vice Chancellor, Vill-Kothon, PO:Shamti, The & Dist : Solan Pin-173212 (HP)	Member
10.	Mr. D.K. Sharma,(Professor), B -73, Sector-II, Main Road, New Shimla, Shimla-9	Member

H.S. Dhaliwal

(Dr. H.S. Dhaliwal)
Vice Chancellor
Eternal University
Baru Sahib

V.P.O. - Baru Sahib, Via-Rajgarh, Distt : Sirmour, Himachal Pradesh – 173101 (India)
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Academic Council

Eternal University

(World peace through value based education)

Ref No : EU/RO/NOTFN/21 Dated : 09th September 2015

NOTIFICATION

In pursuance of Clause 20 (i) of Eternal University (Establishment and Regulation) Act No. 3 of 2009 Clause 20 and Clause No. 18 (i) (a) and (b) of the First Statute of the Eternal University, Baru Sahib. The Chancellor of Eternal University is pleased to re-constitute the Academic Council of Eternal University, Baru Sahib consisting of the following members by superseding the previous notification EU/RO/NOTFN/21 dated 23rd March 2015:

1.	Dr. H.S. Dhaliwal (Vice Chancellor)	Chairman
2.	Dr. Davinder Singh (Registrar)	Member/Secretary
3	Dr. Neelam Kaur (Dean Faculty of Health & Allied Sciences and Dean Faculty of Education)	Member
4	Dr. BS Boparai (Dean, Akal College of Agriculture)	Member
5.	Dr.BS Sohal (Dean, Akal College of Basic Sciences)	Member
6.	Dr. PS Cheema (Dean, Akal College of Science & Technology)	Member
7.	Dr. Poorvi Luniyal (Dean Akal College of Arts & Social Sciences)	Member
8.	Dr. J.L. Sharma Dean Akal College of Economics, Commerce & Management)	Member
9.	Dr. Ajit Singh (Dean Library & Information System)	Member
10.	Controller of Examination	Member
11.	Dean Student Welfare	Member
12.	Director Admission & Placement	Member
13.	Principal Akal College of Education	Member

V.P.O. - Baru Sahib, Via-Rajgarh, Distt : Sirmour, Himachal Pradesh – 173101 (India)
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E-mail : contact@eternaluniversity.edu.in, Web site: www.eternaluniversity.edu.in

EU

Eternal University

(World peace through value based education)

14.	Principal Akal College of Nursing	Member
15.	Krishan Kumar, (Professor Fruit Sciences Dr YS Parmar University of Horticulture & Forestry, Nauni, Dist Solan (HP)	Member
16.	Dr. Manmohan S. Arora Block No-D, Room No 828, 2nd Floor New Friends Colony New Delh-11065	Member

H.S. Dhaliwal

(Dr. H.S. Dhaliwal)
Vice Chancellor
Eternal University
Baru Sahib

V.P.O. - Baru Sahib, Via-Rajgarh, Distt : Sirmour, Himachal Pradesh – 173101 (India)
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E-mail : contact@eternaluniversity.edu.in, Web site: www.eternaluniversity.edu.in

Finance Commitee

Eternal University

(World peace through value based education)

Ref No : EU/RO/NOTFN/021

Dated : 09th September 2015

NOTIFICATION

In pursuance of Clause 22 of First Statutes of Eternal University (Establishment and Regulation) Act No. 3 of 2009 and Amendment Act No. 23 of 2012. The Chancellor of Eternal University is pleased to Constitute the FINANCE COMMITTEE of Eternal University, Baru Sahib consisting of the following members by superseding previous Notification No EU/RO/NOTFN/021 dated 08th Jan 2015:

1.	Dr. H.S Dhaliwal (Vice Chancellor)	Chairman
2.	Dr. Davinder Singh(Registrar)	Member
3.	Dr. BS Sohal	Member
4.	Dr. J.L. Sharma	Member
5.	Dr. Ajit Singh	Member
6.	Shri D. L. Thakur, Joint Controller (LAD),Resident Audit Scheme, H.P. University, Summer Hill, Shimla-5 (09816242924 & 0177-2830892) Email-dlthakur1957@gmail.com	Member (Government Nominee)
7.	Mr. D.K. Sharma, B -73, Sector-II, Main Road, New Shimla, Shimla-9	Member

H.S. Dhaliwal

(Dr. H.S Dhaliwal)
Vice Chancellor
Eternal University
Baru Sahib

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OFFICERS OF THE UNIVERSITY

No.	Designation	Name of the officer
1	Chancellor	Baba Iqbal Singh Ji Director (Rtd.) Department of Agriculture, H.P.
2	Vice Chancellor	Dr. H. S. Dhaliwal
3	Registrar	Dr. Davinder Singh
4	Additional Registrar , Dean of Library and Information System	Late Dr. Ajit Singh
5	Dean, Akal College of Health & Allied Sciences	Dr. Neelam Kaur
6	Dean, Akal College of Agriculture	Dr. B. S. Boparai
7	Dean, Akal College of Basic Sciences	Dr. B.S. Sohal
8	Dean, Akal College of Engineering & Technology	Dr. P.S. Cheema
9	Dean, Akal College of Arts & Social Sciences	Dr. Purvi Luniyal
10	Dean, Akal College of Economics, Commerce & Management	Dr. J.L. Sharma
11	Dean, Akal College of Education	Dr. Neelam Kaur
12	Dean of Post Graduate Studies	Dr. B.S. Sohal
13	Dean Students Welfare	Dr. Jaswant Singh
14	Additional Registrar	Dr. Ramesh Arora
15	Chief Finance & Accounts Officer	Dr. Satish Chandra Tiwari , Assistant Professor

ACADEMIC PROGRAMMES

Sr. No.	Course Name (s)	Approved Intake
	Akal College of Engineering & Technology	
1	B. Tech. ECE	60
2	B. Tech. CSE	60
3	B.Tech. EEE	60
4	M. Tech. ECE	18
5	M. Tech. CSE	18
6	M.Tech. Renewable Energy	18
7	Ph.D. CSE	3
	Akal College of Basic Sciences	
8	B.Sc. Medical	30
9	B.Sc. Non-Medical	30
10	B.Sc. (Hons.) Mathematics	60
11	B.Sc. (Hons.) Chemistry	60
12	B.Sc. (Hons.) Physics	60
13	B.Sc. (Hons.) Microbiology	30
14	B.Sc. (Hons.) Biochemistry	30
15	B.Sc. (Hons.) Botany	30
16	B.Sc. (Hons.) Zoology	30
17	M.Sc. Biochemistry	30
18	M.Sc. Botany	30
19	M.Sc. Zoology	30
20	M.Sc. Microbiology	30
21	M.Sc. Math's	30
22	M.Sc. Chemistry	30
23	M.Sc. Physics	30
24	Ph.D. Chemistry	2
25	Ph.D. Biochemistry	2
26	Ph.D. Physics	2
	Akal College of Agriculture	
27	B.Sc. Agriculture (Hons.)	60
28	B.Tech. Food Technology	60
29	M.Sc. Biotechnology	30
30	M.Sc. Food Technology	30
31	Ph.D. Biotechnology	3
	Akal College of Economics, Commerce & Management	
32	B.Sc. Economics (Hons.)	40
33	B.Com. (Hons.)	60
34	M.Sc. Economics	30
35	MBA	60
36	M.Com.	30
37	Ph.D. Economics	2
	Akal College of Arts & Social Sciences	
38	B.A. (Hons.) Music	40
39	B.A. Humanities	40
40	B.Sc. (Hons.) Psychology	30
41	M.A. English	30
42	M.A. Music	30
43	Ph.D. English	1
44	Ph.D. Music	2
	Akal College of Health & Allied Sciences	
45	B.Sc. Nursing	60
46	M.Sc. Nursing	20
47	MPH	30
48	MHA	30
	Akal College of Education	
49	B.Ed.	100
	Total	**1631**

Annexure-II

Eternal University

(World peace through value based education)

ACADEMIC CALENDAR (2017-18)

For all undergraduate and postgraduate programmes (Except Nursing)

Events	Odd Semester	Even Semester
Registration	August 1, 2017	February 6, 2018
Registration with late fee	August 12, 2017	February 19, 2018
Last date of adding course	August 26, 2017	March 1, 2018
First Sessional theory examination (in class)	September 4-9, 2017	March 8-14, 2018
Last date of dropping a course	September 12, 2017	March 17, 2018
Second Sessional Practical examination (in class)	October 10-14, 2017	April 16-21, 2018
Mid Semester break	October 16-21, 2017	April 24-28, 2018
Second Sessional theory examination	October 24-28, 2017	April 30-May5, 2018
Second Session reports to the Deans	November 18, 2017	May 26, 2018
End Semester Practical examinations(in class)	December 7-13, 2017	June 12-16, 2018
End Semester theory examination	December 14-23, 2017	June 18-30, 2018
Winter/ Summer break	Dec 26, 2017 - Feb 5, 2018	July 2-31, 2018
Declaration of result	February 5, 2018	July 31, 2018
Semester duration in weeks and days	20 weeks and 4 days (144 days)	20 weeks and 4 days (144 days)
Semester working days	114	115
Teaching days	94	93
Day 1 to FSTE (days)	26	24
FSTE to SSTE (days)	32	36
SSTE to ESTE (days)	36	33

Eternal University will remain closed on National/State holidays i.e. January 26, August 15, October 2, and April 15

Station : Baru Sahib

Date : 28th February 2017

(Dr. BS Sohal)
Controller of Examination
Eternal University
Baru Sahib

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ABOUT THE UNIVERSITY

Over a hundred year ago in 1906, His Holiness Sant Attar Singh Ji Mastuane Wale had shared his Divine Vision with his spiritual follower Sant Teja Singh Ji MA, LLB, AM (Harvard) about a sacred place in the Himalayan region of erstwhile Nahan State (now known as Baru Sahib) where many sages and seers had meditated on the Divine Name . The place was also blessed by Shri Guru Gobind Singh Ji, during his visit to Nahan State. Sant Attar Singh Ji had desired that the place should be established as Spiritual Centre for the educational institutions imparting Value-Based Education combined with modern scientific education on the pattern of old Gurukuls like Nalanda and Takshashila Universities of the past. As ordained, Sant Teja Singh Ji revealed the Divine Valley Baru Sahib in 1956 to his spiritual disciple Baba Iqbal Singh Ji and later purchased the entire Baru village of 460 acres from Thakur Joginder Singh, the owner of the land. Sant Teja Singh Ji visited Baru Sahib in 1959 at the age of 82 along with his many highly educated devotees. During his second visit to Baru Sahib, a small mud structure Gurudwara with a verandah was constructed and Shri Guru Granth Sahib was ensconced. During the prayer he prophesied that with the will of God, this place would turn into a great spiritual center from where schools, colleges and a divine University will impart Value-Based Education from Nursery class up to the Ph.D. level. Sant Teja Singh Ji established a trust in 1965 with his six devotees. It was registered as "The Kalgidhar Trust " on October 22, 1982 by Baba Iqbal Singh Ji, the then Director Agriculture, Himachal Pradesh, to promote world peace through spiritual and value-based education and universal brotherhood. To further the cause of The Kalgidhar Trust, the first Akal Academy was established at Baru Sahib in 1986 and the outstanding model has been translated to network of more than 130 Akal Academies in six states of northern India and two Universities, Eternal University at Baru Sahib (HP) and Akal University at Talwandi Sabo, Bathinda, Punjab.

Eternal University, Baru Sahib was established under the Himachal Pradesh Government Act No. 3 of 2009 to impart Values-Based Education in the subjects of Arts, Sciences, Nursing, Engineering and Technology, Agriculture, Divine Music, Education and Public Health etc. Eternal University is a world class multi-faculty University with six colleges spread over 8,00,000 square feet in the picturesque Valley of Divine Peace. The university is developing outstanding Engineers, Scientists, Musicians, Administrators, Teachers and Global Citizens with high moral values to act as ambassadors of Eternal Peace and Universal Brotherhood.

It has Seven constituent colleges, 1) Akal College of Agriculture 2) Akal College of Arts & Social Sciences 3) Akal College of Basic Sciences 4) Akal College of Economics, Commerce & Management 5) Akal College of Engg. & Tech. 6) Akal College of Health & Allied Sciences 7) Akal College of Education

Akal College of Agriculture

Introduction: Akal College of Agriculture (ACA), has been established in the Eternal University, Baru Sahib for providing undergraduate [B.Sc.(Hons.) Agriculture and B.Tech. Food Technology] and postgraduate (M.Sc. and Ph.D.) teaching and, research and development in the field of agriculture and allied streams like biotechnology (with specialization in plant, medicinal, environmental, microbial and industrial biotechnology) and Food Technology to ensure food, nutrition and health security to ever increasing global population. B.Sc. (Hons.) Agriculture program was started in 2014 with intake capacity of 60 girl students. A number of functional food crops including QPM maize, KTI free soybean, buckwheat, oats, barley, amaranthus, finger millet, linseed and pearl millet have been grown, maintained and analyzed for their nutraceutical potential. The college organized a National Symposium on the "Advances in Biotechnology for Crop Improvement" on 12 July 2014 in which more than 250 faculty and students participated from various Universities such as Shoolini University, Jaypee University, PAU Ludhiana, HAU Hisar, Dr YS Parmar UHF Nauni etc. Another National Conference on Advances in Food Technology was organized 24-25 March 2017 with an attendance of more than 300 participants from all around India. The college is giving high emphasis on farmers welfare and extension work through village adaptation and organizing Kisan Mela every year. The college has also got an approval for starting new postgraduate academic programs in five disciplines from academic session 2017-18

New Appointments

Name	Designation	Degree	Specialization
Dr. Ramesh Arora	Professor	PhD	Entomology
Dr. Priyanka Thakur	Asst. Professor	PhD	Entomology
Dr. Santosh Bhatt	Asst. Professor	PhD	Soil Science
Dr. Bhupendra Kharayat	Asst. Professor	PhD	Plant Pathology
Mr. Shiv Kumar	Asst. Professor	M.Sc.	Food Technology
Dr. Harish Kumar	Asst. Professor	Ph.D.	Food Technology

List of equipments purchased (above Rs. 20,000/-)

Instruments details	Price (In Rs.)
Freeze dryer	2,75,000
Retort pouch machine	17,00,000
Anoxomat System Serial1105-886	1,00,000
Herasafe Ks 18, 230V	1,00,000
Centrifuge 5810R, Refrigerated, 230V/50-60Hz, Replacement Mtp Buckets Suitable For Rotor A-4-62-Mtp, Set Of 4	1,00,000
Rotavapor - Buchi	70,000
Water Purification System, Millipore	70,000
BOD Incubator Model Igs400 Heratherm 230Vac;50/60Hz (2 Nos.)	1,00,000
Sanyo/Panasonic Autoclave Model Mls 3020U	30,000
Centrifuge 5418R (Refrigerated)	60,000
Inverted Microscope with camera and computer	50,000
Countess Automated Cell Counter	30,000
Co_2 Incubator, Thermo Forma (3 Nos.)	1,00,000
Multipurpose Centrifuge	5,99,500
Inverted Microscope	1,85,000
Biosafety cabinet	1,85,000

Akal Modern Dairy Complex Established

Eternal University has established an Akal Modern Dairy Complex near the new building of Akal College of Agriculture for teaching and research in agriculture and food technology. At present, there are eight cows (five Jersey and three Holstein Fresian). Total average daily milk production is about 80 liters. Milk costing about Rs. 55,000 is being sold very month and a total of about Rs 6 lacs has been earned by dairy complex through selling of milk. Cattle are fed with nutritious diets such as wheat straw; green fodder such as sorghum, maize, oats, barley, barseem and mustard; silage, porridge, jaggery and nutritious animal feeds. Modern equipments are utilized for various operations such as automatic milking machine for milking and chaff cutter for cutting of wet and dry fodder. All the animals are subjected to medical check-up by govt. veterinary doctor at regular intervals. There are two workers appointed to take care of all the animals and maintain hygienic conditions in the dairy complex. Water supply is available for drinking and bathing of cattle and geysers are installed for providing warm water in winter season. There is also an open area for sitting and walking of animals during day time.

RESEARCH PROGRESS

1. Biofortification of wheat for micronutrients through conventional and molecular approaches-Phase II

Principal Investigator: Dr. Rahul Kumar

Co-Principal Investigator: Dr. H.S. Dhaliwal

Research Scholars: Mr. Imran Sheikh and Ms. Prachi Sharma

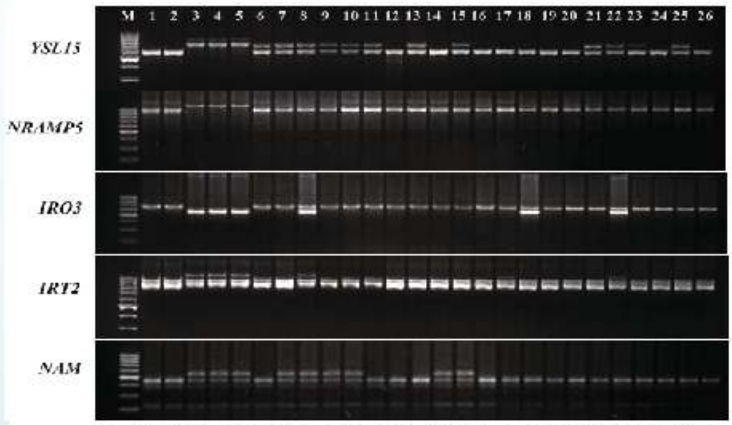
Introduction:

About two billion people of the world dependent on staple cereal and tuber food crops are suffering from iron and zinc micronutrient deficiency. The project proposal was aimed at alleviating the micronutrient deficiency through biofortification of wheat cultivars for higher grain iron and zinc content. A number of related wild progenitor and non-progenitor species possessing high grain iron and zinc had been identified and their chromosomes carrying the genes for micronutrient uptake, translocation and sequestration introgressed into elite wheat

cultivars as alien transfers, substitution and

Field Photographs of Biofortified lines

addition lines through wide hybridization and molecular cytogenetic approaches. Such derivatives were used for dissecting the alien genomes for detailed investigation of the pathways and genes leading to high grain iron, zinc and other micronutrients. Wheat cultivars with different small alien transfers controlling high grain iron and/or zinc without any appreciable linkage drag were used for pyramiding and development of cultivars with higher grain



The ITAP markers analysis of pollen radiation hybrid derivatives (PRH5), Lane M: Ladder (100 bp Ladder), (1) PBW343 LrP, (2) WL711, (3) *Aegilops peregrina* 1155-5-1, (4) *Aegilops kotschyi* 396, (5) *Aegilopskotschyi* 3790, (6) 1-1-7-18-5-4,(7) 46-1-15-15-3-2, (8) 48-41-6-6-5, (9) 49-1-11-9-7-1, (10) 63-2-12-14-2, (11) 77-46-6-8-2-10, Lane (12-26)

micronutrients for meeting the RDA of the micronutrients. Such biofortified cultivars can be further used for studies for enhancing bioavailability of the micronutrients and cloning genes affecting grain micronutrient concentration.

Achievements:

• The wheat-Aegilops derivatives with high grain micronutrient have mostly the substitution/addition of group 2 and 7 chromosomes indicating that the most of the genes for micronutrients uptake/translocation/seed sequestration are on these chromosomes as reported in QTL mapping studies.

• Most of these alien-*Aegilops* chromosomes in the addition/substitution lines having high micronutrient content have been transferred to high yielding and rust resistant backgrounds of predominant wheat cultivar PBW343 LrYr.

• Appropriate crosses of most of the wheat-*Aegilops* derivatives have been made with *ph1bph1b* stock or through their pollen irradiation for fine transfer of useful variability with reduced linkage drag.

• Analysis of intron targeted amplified polymorphic (ITAP) markers confirmed the precise transfers of the genes for micronutrients uptake/translocation/seed sequestration from *Aegilops* species.

Future directions:

• The work on pyramiding of fine transfers of various metal homeostasis genes using ITAP gene based markers will be continued.

• The derivatives with high grain micronutrients and yield being tested in multiplications trails, multiplied and tested for commercial release.

2. **Improvement of end use quality of 1BL/1RS translocation containing wheat varieties by removing of Sec-1 loci and retaining Glu-B3 using marker assisted backcross breeding (MABB).**

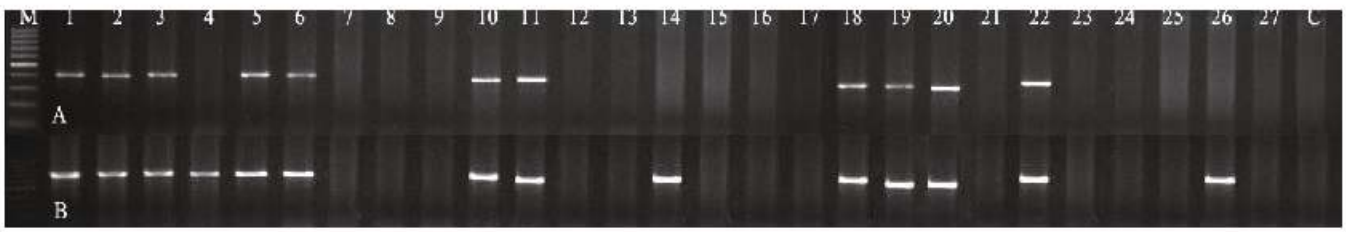
Principal Investigator: Dr. Rahul Kumar

Co-Principal Investigator: Dr. Pritesh Vyas

Research Scholar: Ms. Ambika Sharma

Introduction:

1RS.1BL translocation in wheat, well known for its multiple disease resistance *(Lr26, Yr9, Sr31 and Pm8)*, has been widely used in wheat breeding programmes. It is also associated with increased root biomass and high yield in wheat. However, this translocation exhibits serious defects in dough quality due to the presence of Sec-1 loci on 1RS arm. The presence of secalin causes dough stickiness while the loss of Glu-*B3/Gli-B1* on 1BS reduces the dough strength. High molecular weight glutenin subunits (HMWGS) are the major determinants of dough strength in wheat. Presence and absence of glutenin subunits associated with different genomes in wheat are responsible for difference in gluten strength of wheat. Increased root biomass and higher grain yield have been the key features of 1RS.1BL translocation in wheat. Root biomass taken as nutrient and water more efficiently to improve grain yield.



Agarose gel profiling for presence/absence of (A) Sec-1 locus (B) Pm8 in different wheat genotypes. Control M. Marker

Work Done:

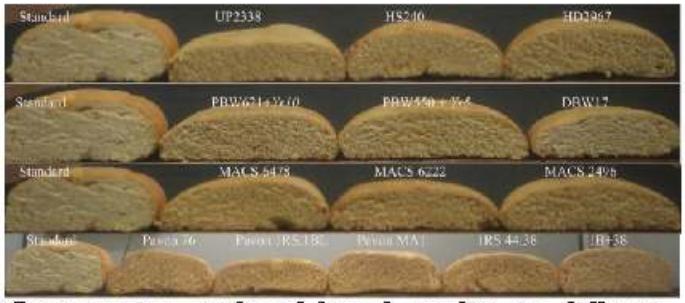
In the present study different genotypes including *1BL.1RS* translocation, recombinants and non translocated lines were used to examine their micro SDS sedimentation test (MST) value, high molecular weight glutenin subunits (HMWGS) and bread making analysis. PCR-based markers were used to check the presence of Sec-1, rye translocation, *Glu-B3/Gli-B1* and *Pm8* respectively. In foreground selection, Secalin negative, *Glu-B3/Gli-B1* positive as well as negative and *Pm8* positive plants were selected for further backcross breeding. Subsequent background selection of various crosses has also been done.

Achievements:

- The HMW-GS and MST analysis inferred that 1RS translocation and non-translocation lines had significant difference in MST values due to the presence/absence of secalin.
- The presence of *GluB3/GliB1* has less or no impact on MST values.
- Presence of *Pm8* leads to better root traits inferring presence of QTLs (for root traits) linked to *Pm8*.
- The genotypes having *GluD1 (5+10)* had high MST values than the *GluD1 (2+12)*.
- Poor loaf volume in the bread of genotypes having secalin confirmed the role of secalin in deteriorating bread quality.
- The phenotyping of root in field conditions showed that the 1BL/1RS translocation lines had higher root biomass and better root features than the non-translocation lines.
- In hydroponic culture system the translocation lines had high number of seminal roots and higher root biomass than the non-translocated lines.

Future directions:

The present research work will lead to the development of lines that have better bread making quality (high gluten strength and high MST values) and improved root traits and yield.



Comparative study of bread quality in different wheat genotypes using white bread as the standard.

3. Screening iron, zinc and carotenoid bioavailability from biofortified staple crops using coupled in vitro digestion/Caco-2 cell model

Principal Investigator: Dr. Vinod Kumar Sangwan

Research Scholar: Ms. Meena Verma

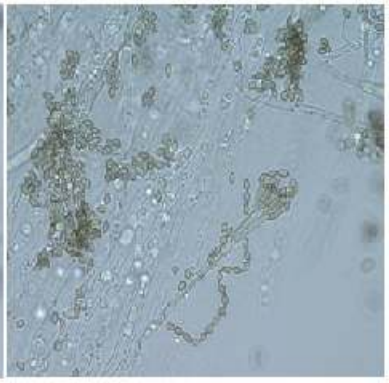
Introduction:

Lower content and bioavailability of iron and zinc from staple cereals and legumes due to presence of antinutritional compounds is a main reason of micronutrient malnutrition in most of the population in developing countries. Phytic acid is known to chelate divalent cations and is considered as the most potent inhibitor of iron and zinc absorption and decreased bioavailability in monogastric animals due to absence of phytase in their digestive system. Cereals and pulses are known to contain high amount of phytic acid (1-5%) in grains capable of storage of 60-90% phosphorous and similar amounts of iron and zinc. Recent studies provide significant evidences of dephytinization by phytase application as an approach to enhance bioavailability. Therefore, dephytinization by activation of either endogenous phytases or external addition of phytases during processing of cereal grains is a promising approach for increased bioavailability of micronutrients. Present proposal envisages to study phytase supplementation for enhanced iron and zinc bioavailability from normal and biofortified staple cereals (developed through DBT network project on biofortification) using coupled in vitro digestion/Caco-2 cell model in collaboration with National Institute of Nutrition, Hyderabad and Indian Institute of Technology, Roorkee. Information on the bioavailability of iron and zinc from in biofortified cereals would be useful for computing the recommended dietary allowances, as well as for evolving a dietary strategy to improve micronutrient intake.

Work done:

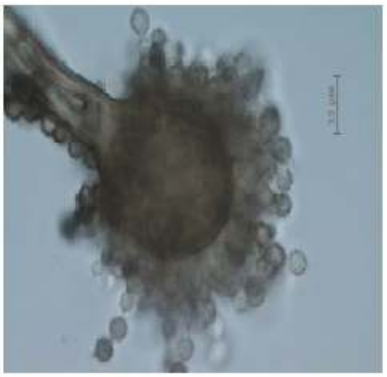
In DBT funded project entitled "Screening iron, zinc and carotenoid bioavailability from biofortified staple crops using coupled in vitro digestion/ Caco-2 cell model", various fungal isolates (A. *Talaromyces* sp. EUFR-2, B. *Penicillium oxalicum* EUFR-3, C. *Penicillium crustosum* EUFR-15, D. *Aspergillus aculeatus*

Talaromyces sp. EUFR-2



Penicillium oxalicum EUFR-3

Penicillium crustosum EUFR-15



Aspergillus aculeatus APF1

APF1) for phytase production were isolated and identified. The phytase activity of these isolates was in the range of 1.22 U/g to 12.8 U/g under solid state fermentation. The phytase enzyme from these fungal isolates was analyzed for its efficiency in reducing antinutritional properties and increasing micronutrient dialyzability of biofortified wheat derivatives. The treatment APF1 Phytase, EUFR3 Phytase and Wheat phytase led to a decrease in phytic acid 3-68% and tannin 5-53% content after treatments with variation in efficacy of different phytases. Dialyzability of Mn, Fe and Zn was increased to 6-92%, 1-55% and 11-93%, respectively over untreated samples. The study reveals that phytases could be used to food applications to increase micronutrient dialyzability as well as to enhance nutritional quality.

Achievements:

- Phytase enzyme was produced and characterized from fungal sources
- Nutritional and antinutritional analysis of biofortified wheat derivatives was carried out
- Micronutrient dialyzability in biofortified derivatives and control wheat varieties was estimated
- Application of phytase enzyme led to decreased antinutritional compounds and increased micronutrient dialyzability in treated samples

Future Directions:

- Establishment of Caco 2 cell culture facility and estimation of Fe/Zn bioavailability using Caco2 cell model.
- Effect of phytase on zinc bioavailability using luciferase reporter gene based transactivation assay.

4. Institutional Project: Molecular breeding for improvement of protein quality in local maize cultivars of Himachal Pradesh

Principal Investigator: Dr. Rahul Kumar

Principal Investigator: Dr. H.S Dhaliwal

Introduction

Maize (*Zea mays* L.) is a major cereal crop for livestock feed, human consumption and several industrial uses as well. Because of all these benefits, maize has become a choice among major crops for farmers in developing countries. But maize is deficient in lysine and tryptophan. Deficiency of these two amino acids causes some of the fatal diseases like pellagra, kwashiorkor etc and also malfunctions due to lack of proteins

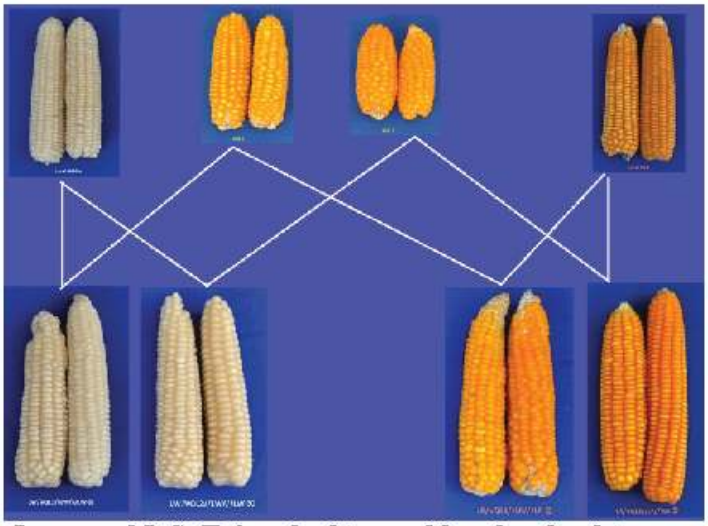
Work done

Genotypes with *opaque 2* (o2) allele and o2 modifiers having increased lysine and tryptophan level but without the negative effect of soft endosperm were developed and termed as 'Quality Protein Maize' (QPM).In this study, *Opaque2* gene was transferred from VQL-1 and VQL-2 to local cultivars(LW and LR) of Himachal Pradesh and screened using marker umc1066. *Opaque2* gene was transferred from VQL-1 and VQL-2 inbred lines to local white (LW) and local red (LR) cultivars of Himachal Pradesh using linked molecular marker umc1066. In BC_2F_2 generations 142 plants of local white background with *opaque 2* gene in homozygous conditon. In another BC_2F_2 generations of cross 135 plants of local background

with homozygous *opaque 2* gene. In both the BC_1F_2 generations, Chi-square value gave good fit to 1:2:1 ratio at $P \leq 0.05$. All the identified homozygous *o2o2* cobs were subjected to phenotypic screening of individual kernels under transmitted light. The *opaque2* allele is recessive and the endosperm modifiers are polygenic. Phenotypic screening of the individual kernels under transmitted light and selection of kernels that have less than 25% opaqueness is by far the most convenient and efficient strategy employed in all the QPM breeding programs.

Achievements

The receive *opaque 2* allele has been successfully transferred into local white and local red maize cultivars of Himachal Pradesh. QPM BC_2F_3 plants of improved local white and local red will be inter-crossed in all combinations to store their original population structure and released for cultivation.



Improved BC_2F_2 local white and local red cultivars of Himachal Pradesh

5.Nutritional evaluation of different cultivars of oat (*Avena sativa* L.) and foxtail millet (*Setaria italica* L.) and their utilization for development of functional foods.

Introduction

Oat (Avena sativa L.) has received considerable attention for their high content of dietary fibers, high quality proteins, phytochemicals and other nutrients. Owing to their high nutritional value, oat-based food products like breakfast cereals, flakes and infant foods are gaining increased considerations. Oat possesses different pharmacological activities like antioxidant, anti-inflammatory, wound healing, immune-modulatory, anti-diabetic, anti-cholesterolaemic etc. All these biological activities indicate that oat is a potential therapeutic agent. Millets are one of the most important drought-resistant crops widely grown in the semi-arid tropics of Africa and Asia. These are highly valuable for presence of various nutraceutical components which are helpful in prevention of various lifestyle diseases such as cancer, cardiovascular diseases, low and high blood pressure, diabetes etc. Because of their important contribution in food security and potential health benefits, millet grains are now main topic of research for food scientists. Foxtail millet (Setaria italica L.) is a rich source of protein, fat, carbohydrate and crude fiber. It is rich source of amino acids isoleucine, leucine, tryptophan, threonine, lysine and B-group vitamins such as thiamin, niacin, riboflavin and minerals such as calcium. Value added products from foxtail millets could be helpful in prevention and treatment of nutritional deficiency disorders.

With several reports of health benefits of these important nutritional crops, there is an immense scope of their application in preparation of various nutraceutical and functional foods. Processing of oats is limited mainly to pearling, flaking, heat processing, superheated steam processing etc. but incorporation of oat in other cereals for development of value added processed products is still lacking in literature. Presence of nutritional diversity in different cultivars of same crop is well documented for several crops and it was revealed that some varieties are better than others considering their nutritional composition. A comparative analysis of different varieties for such parameters is useful in their efficient use in preparation of processed products. The oats and foxtail millet varieties taken in this study were analysed for their nutritional properties for selection of best variety to be used for its application in development of nutraceutical processed products. The present studies were carried out at Department of Food Technology, Eternal University, Baru Sahib with following objectives

Work done:

Five cultivars of oat were evaluated for their nutritional characteristics. As it is a rich source of proteins, soluble dietary fibres such as ß-glucan, the highly nutritious cultivar (Kent) with protein content of 15.46%, crude fibre, 6.16%, ß-glucan 5.08 (g/100g) and highest amount of valuable mineral elements such as Iron (5.62 mg/100g), copper (4.98 mg/100g) and manganese (3.41 mg/kg), was selected for development of functional foods. Processed products i. e. cookies, breads and noodles were prepared by incorporation of different proportion of oat with wheat flour. In case of Foxtail millet, 19 cultivars of foxtail millet were evaluated for their nutritional characteristics. As it is a rich source of crude fiber and protein, the highly nutritious cultivar (IC-480554) with crude fiber and protein content of 7.45% and 11.72% was selected for development of nutraceutical products. Processed products i.e. cookies, bread and noodles were prepared by incorporation of different proportion of foxtail millet with wheat flour. Methods of preparation of various oat and foxtail based processed products were standardized. Processed products were subjected to organoleptic evaluation by a semi-trained panel for judging the acceptance of different concentration of oat in processed products.

Achievements:

- The highly nutritious oat cultivar (Kent) was screened out with protein content of 15.46%, crude fibre 6.16%, ß-glucan 5.08 (mg/100g) and highest amount of valuable mineral elements such as Iron (5.62 mg/100g), copper (4.98 mg/100g) and manganese (3.41 mg/100g) for utilization in development of functional foods. In Foxtail millet, the highly nutritious cultivar (IC-480554 with crude fiber and protein content of 7.45% and 11.72% respectively was selected for development of processed products
- Organoleptic evaluation of oat incorporated products concluded that cookies were desirable only up to 75%, while bread and noodles were moderately desirable only up to 20 and 30% replacement of wheat flour with oat flour, respectively. In case of foxtail millet incorporated products, cookies were desirable only up to 75%, while breads were moderately desirable only up to 20% replacement of wheat flour.
- Significant increases in protein, ash, crude fat and crude fibre contents were reported with increasing the level of oat flour whereas, there was significant increase in the crude fiber and crude protein contents of products with addition of foxtail millet flour in wheat flour.

Future Directions:

Shelf-life studies with improved packaging conditions can be further carried out to prevent the loss of crispiness in cookies and staling in bread.

Oat incorporated cookies (OIC= Oat incorporated cookies; Control =100% whole wheat flour; OIC1 = 75% wheat flour+ 25% Oat Flour; OIC2= 50% wheat flour+ 50% Oat Flour; OIC3= 25% wheat flour+ 75% Oat Flour; OIC4= 100% Oat Flour)

Oat incorporated breads (OIB= Oat incorporated breads; Control= 100% wheat flour; OIB1= 90% Wheat flour+ 10% oat Flour; OIB2= 85% Wheat flour+ 15% oat Flour; OIB3= 80% Wheat flour+ 20% oat Flour; OIB4 =75% Wheat flour+25% oat Flour)

6. Characterization of Late blight Disease from Major Tomato growing areas of Himachal Pradesh and development of Integrated Management Strategy

Tomato (*Solanum Lycopersicon* L) is one of the most widely grown vegetable crops. Fungal diseases are of most economic importance and are responsible for huge losses to the growers. Among them, the Oomycete *Phytophthora* represents one of the most serious threats to production. The short life cycle of the disease makes the spread of infection rapid. Symptoms of late blight on tomato leaves and stems are irregularly shaped water soaked lesions can be observed on young leaves at the top part of the plant. Under humid conditions, lesions become brown and pathogen sporulation can be seen. Eventually the leaves shrivel and become necrotic and die. Brown lesions can occur on stems and leaf pedicels.

Infected plant *Healthy plant*

A survey of late blight in different tomato growing areas of Himachal Pradesh revealed that the maximum disease was observed in Rajgarh area of H.P.

Screening of 44 different genotypes under field conditions showed that Solan lalima and PAU 89 were moderately resistant to the disease. Further studies on host-plant resistance, botanicals and biocontrol agents against phytophthora pathogen under lab and field conditions are in progress.

List of Research Projects of PG Students

- Production, characterization and application of fungal phytase for food processing (Mr. Abhishake Saxena)
- Biochemical and microbiological evaluation of natural Shilajit and in vitro synthesis of its major components (Ms. Tanuja Mishra)
- Marker assisted backcross breeding of 1RS.1BL recombinants for improvement of root traits and end use quality of wheat (*Triticum aestivum L.*) cultivars (Ms. Ambika Sharma)
- Nitrogen fixing endophytic microbes from cereal crop and their biotechnological application (Ms. Kusam lata Rana)
- Study on plant phytases and their applications in enhancing micronutrient dialyzability. (Ms. Meena Verma)
- Phosphate solubilizing microbes from different crops and their potential role for sustainable agriculture (Ms. Divjot Kaur)
- Characterization and molecular breeding of popping volume and some diseases resistant traits in popcorn (*Zea mays*) (Ms. Shivani Thakur)
- Transfer of high grain micronutrient and quality traits from *Triticum diccocoides* to bread wheat. (Mr. Aman)
- Introgression of HMWG subunits from *Aegilops kotschyi* to wheat and their interaction for bread making quality (Ms. Apoorva Kumari)
- Molecular mapping of powdery mildew resistance introgressed from *Aegilops triuncialis* into wheat through induced homologous pairing (Mr. Robinsh Kamboj)
- Study of antinutrient profile and micronutrient dialyzability in biofortified staple cereals under phytase treatment (Ms. Shailja Verma)
- Transfer of grain softness and powdery mildew resistance from 5U/5A substitution line to wheat (Mr. Yogesh Sharma)
- Nutritional evaluation of different cultivars of foxtail millet (*Setaria italica* L.) and their utilization for development of functional foods (Ms. Amandeep Kaur)
- Effect of Apple varieties on chemical and sensory properties of cider (Ms Bhawana Gahtori)
- Nutritional evaluation of different cultivars of oat (*Avena sativa* L.) and their utilization for development of functional foods (Ms. Divya Chauhan)

Akal College of Engineering and Technology

Introduction: Akal College of Engineering & Technology was established in 2007. The college aims at providing at value based scientific and technical education for achieving the highest level of professional competency among the students as per the demand of modern industries and institutes to make their placement easy anywhere in the world. The college also strives to inculcate disciplined living, honesty, integrity, high moral character and hard work so that these students grow into good human beings and become asset to the nation.

New Appointment

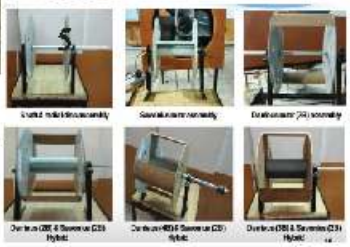
Sr.No	Name	Designation
1	Dr. Noor Danish Ahrar Mundari	Associate Prof.
2	Dr. Devi Lal Punia	Assistant Prof.
3	Er. Sheetal Charbathia	Assistant Prof.
4	Er. Karambir Kaur	Assistant Prof.
5	Er. Shanu Sood	Assistant Prof.
6	Dr. Ruhit Jyoti Konwar	Assistant Prof.
7	Mr. Gurdeep Singh	Lab Instructor

RESEARCH PROGRESS

Department of Renewable Energy was established keeping view of national interest in energy security and environmental issues. Implementation of solar thermal and photovoltaic plants to generate heat and electricity are the major practices carried out by the department. Extensive work has been underway to establish a pilot plant for Biomass Pyrolysis for the production of Bio-diesel, Synthetic gas and Bio-Char from the locally available feedstocks.

The M. Tech. students of the Renewable Energy department have developed several projects such as Solar Air Heater and Dryer, Vertical Axis Wind Turbine, Building integrated box type Solar Cooker, Floating Drum Bio gas plant, Subsonic Wind Tunnel for Wind Turbine, and Water Wheel. The investigators of one of the innovative project entitled with "Cross Flow Turbine for Pico Hydro Power Generation" have been planning to protect the rights at the earliest.

The department is also extensively engaged in the development of Flat plate collector based solar water heating system. Focuses has been given to reduce the cost of the commercially available water heating system without compromising its efficiency. Replacement of conventional insulating material of the water heating system with locally (Himalayan regions) available materials is one of major objective of this project.



Automatic Weather Station - 1, Cross Flow Turbine for Pico Hydro Power Generation-2, Solar Panels - 3, Solar Air Heater and Dryer - 4, Vertical Axis Wind Turbine - 5

List of Research Projects of PG Students

- Hand gestures controlled wireless robotic hand (Aanchal Rani)
- Basic of 4G LTE capacity sites planning using RF tools (Kiran Thakur)
- 4G long term evaluation (LTE) IP multimedia subsystem (IMS) (Monika Kumari)
- Planning of infill sites using RF tools (Shagun Sharma)
- PPG signal generation acquisition with help of TCR 15000 testing of various optical ultrasonic sensor modules using (Simranpreet Kaur)
- 3G radio frequency planning project (Anmol Kaur)
- IOT based LED TV (Arushi Kawatra)
- Arduino based switch (Rajpal Hanspal
- PLC automation (Shatakshi Sharma)
- Performance evaluation of image fusion using the multi-resolution transformation for MRI and CT images. (Ashok Kumar)
- BER evaluation of FSO system using hybrid amplifier in different rainfall conditions. (Pooja Kumari)
- Entity based distinctive secure storage and control enhancement in cloud. (Divesh Kumar)
- Design consideration of micro-strip patch antenna backed by Meta materials for advance communications. (Harmandeep Kaur)
- Design and development of solar based water purification system (Daljeet Kaur)
- Design and analysis of an ultralow-power cmos relaxation oscillator (Gurwinder Kaur)
- Analysis and development of automatic speech recognition and multi-lingual dictionary tools (Karamjot Kaur)
- Performance evaluation of liquid flat plate collector under different design and geo climatic condition (Sarbjeet Kaur)
- Performance analysis of concentrated solar thermic based cooking system at Baru Sahib (Jasdeep Kaur)
- Develop drying kinetics and performance evaluation of solar dryer for mushroom/apple for different design condition (Sandeep Kumar)
- Design and development of a pyrolysis reactor for production of bio-oil from *Ipomoea carnea* (Karamjeet Kaur)
- Design and development of a pyrolysis reactor for production of bio-oil from pine needle weed (Jasveer Kaur)
- Design and development of a pyrolysis reactor for production of bio-oil from *Parthenium* weed (Lovepreet Kaur)
- Performance evaluation and cost analysis of solar based water purifier with other purifying systems (Hardeep Singh)

Akal College of Basic Sciences

Introduction The Akal College of Basic Sciences is running various undergraduate and postgraduate course programmes i.e. B.Sc. (Medical/ Non-medical), M.Sc. and Ph.D. in different disciplines since last few years. In last session (2016-17), the college has started B.Sc. (Hons.) programmes in Physics, Chemistry, Mathematics, Biochemistry, Botany, Zoology and Microbiology disciplines at under-graduate level; M. Sc. programmes in Botany, Biochemistry, Zoology and Microbiology and the Ph.D. programme in Biochemistry at post-graduate level. Keeping in view the present scenario of GOI drive for swatch Bharat and importance of Environment issues and their solutions the College planned to start M. Sc. (Environmental Science) from upcoming session.

New Appointments

Sr. No	Name	Designation
1	Dr. Dinesh Kumar	Assistant Professor
2.	Dr. Devendra Kumar Srivastava	Assistant Professor
3.	Dr. Manish Kumar	Assistant Professor
4.	Mrs. Indira Arora	Assistant Professor

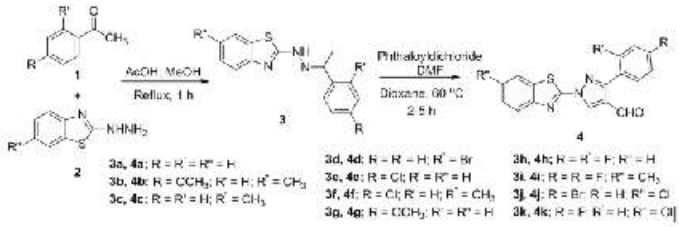
RESEARCH PROGRESS

1. Synthesis of novel pyrazole derivatives using Vilsmeier-Haack reaction

Affiliation: Department of Chemistry, Akal College of Basic Sciences, Eternal University, Baru Sahib, Sirmaur – 173101, H.P. INDIA

Introduction: The Vilsmeier-Haack reaction has historically been a well-defined subject of interest to an organic chemist, and found an excellent transformation in organic synthesis. The Vilsmeier-Haack reaction, discovered in 1927, is a powerful synthetic tool in organic as well as in medicinal chemistry. Initially, it was used for the introduction of the formyl group in activated aromatic and heteroaromatic compounds (Traynelis et al 1957) but presently, it has been used in various transformations such as chlorination, chloroformylation, aromatization, cyclisations, dehydration and many others (Su et al 2010). The Vilsmeier-Haack reaction has also found growing application in the domino synthesis of heteroaromatic compounds (Chen et al 2007). Using Vilsmeier-Haack reagent, a large number of heterocyclic compounds such as pyridines (Cossey 1972), quinolines (Meth-Cohn 1979), pyrazoles (Eicher et al 2013) and indoles (Klutchko 1965) were synthesized successfully.

Objective: The various 4-functional pyrazoles, fused pyrazoles (tetrahydroindazoles) using Vilsmeier-Haack reagent under microwave as well as thermal conditions can significantly influence biological activity and the binding affinity.

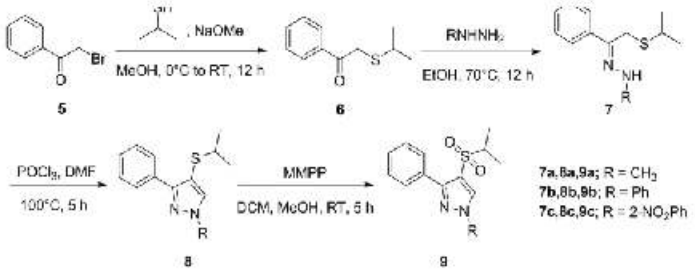


Research Progress: Efficient conversion of hydrazones **3a-k** derived from their corresponding methyl ketones to 4-formylpyrazoles **4a-k** was carried out at 60 °C in dioxane, using the Vilsmeier-Haack reagent isolated from phthaloyl dichloride and *N*,*N*-dimethylformamide (**Scheme 1**). The newly synthesized compounds **4a-k** and hydrazones **3a-k** were screened in vitro for their antimicrobial and antioxidant activities using the broth macrodilution method and the DPPH radical scavenging assay, respectively.

Scheme 1.

The synthesis of 4-(isopropylsulfonyl)-1,3-disubstituted-1*H*-pyrazoles **(9a–c)** (**Scheme 2**) were started from commercially available phenacyl bromide. The reaction of phenacyl

bromide with propanethiol using sodium methoxide afforded 2-(isopropylthio)-1-phenylethanone which after treating with various hydrazines resulted formation of hydrazones **7a-c.** The hydrazones **7a-c** were further treated with Vilsmeier-Haack reagent prepared from phosphorous oxychloride in *N,N*-dimethylformamide afforded 4-(isopropylthio)-1-substituted-3-phenyl-1*H*-pyrazoles (**8a-c**). The



pyrazole compounds **8a-c** were treated with magnesium monoperoxyphthalate (MMPP) gave the 4-(isopropylsulfonyl)-1-substituted-3-phenyl-1*H*-pyrazole derivative **9a-c** in good to excellent yield which were well characterized by IR, MS and NMR spectroscopy.

Scheme 2.

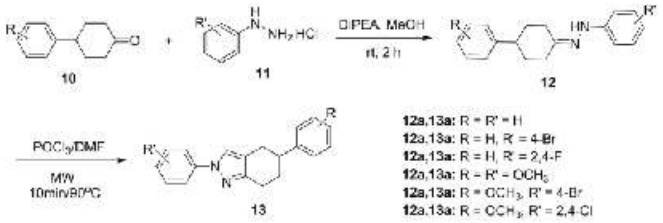
Although a wide variety of hydrazones of enolizable ketones were studied under Vilsmeier-Haack condition, the cyclization potential of hydrazones of cyclic keto compounds still remains unexplored which prompted us to carry out the study of cyclization of various 4-substituted cyclohexanonehydrazones under Vilsmeier-Haack reaction conditions.

A convenient and efficient synthesis of novel 4,5,6,7-tetrahydroindazole derivatives (**13**) using microwave assisted Vilsmeier-Haack reaction was carried out. Microwave irradiation has resulted high yielding, shortened reaction times, clean, eco-friendly and reduces the use of volatile organic compounds. This is a simple and green method for the synthesis of substituted tetrahydroindazole derivatives. The outline of the synthesis is given in scheme **3**.

Scheme 3.

The synthesis of more pyrazoles bearing various functional groups such as CN, COOH, CO_2R, $CONHNH_2$, $CONH_2$, $CSNH_2$ etc. at 4-position still is in progress.

Future Prospects: Although a good amount of applications of Vilsmeier-Haack reactions are



reported in literature still it has wide scope in the field of heterocyclic chemistry. The synthesis of various types of heterocyclic compounds is still unexplored; therefore, Vilsmeier-Haack reaction may prove an excellent synthetic tool to explore the synthesis of those heterocyclic compounds which can significantly influence biological activity and the binding affinity.

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2. Nanoparticles of tri-doped titanium dioxide (TiO_2)

The department of Physics have developed the nanoparticles of tri-doped titanium dioxide (TiO_2) and co-doped zinc oxide (ZnO) using sol-gel auto

combustion and co-precipitation techniques. The X-ray diffraction (XRD) pattern of doped and undoped TiO_2 and ZnO synthesized by co-precipitation techniques are shown in **figure 1**. The crystallite size of TiO_2 series is around 5 to 6 nm and all the samples are crystallized in pure anatase phase. However, the crystallite size of ZnO series is in the range of 35 to 50 nm. ZnO is crystallized in pure wurtzite phase up to the 1 mol% Copper (Cu) doping and above this concentration of Cu, some impurity phases of $Cu(OH)_2$ (#), Cu_2O (+) and CuO (*) in co-doped ZnO are observed as shown in **figure 1**. All the synthesized nanoparticles will further be characterized using UV-Visible spectroscopy, resistivity measurement etc. for the application of working electrodes in solar cells.

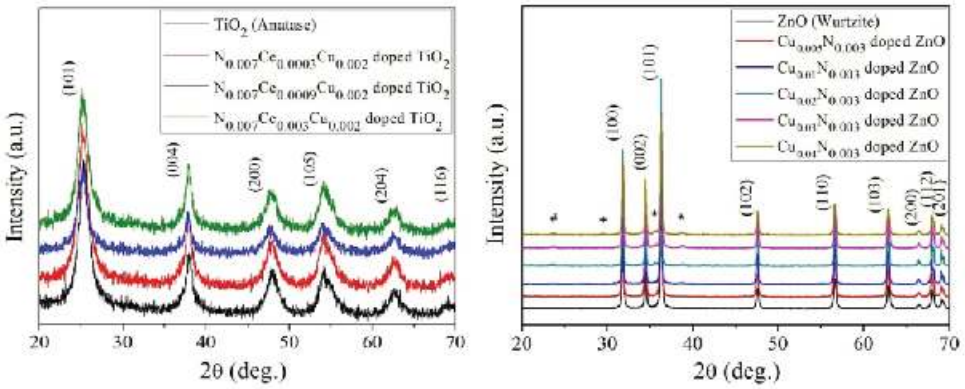


Figure 1: The X-ray diffraction pattern of pure and doped TiO_2 and ZnO nanoparticles synthesized by co-precipitation technique.

3. Exploitation of Biodiversity of Medicinal Plants of District Sirmour (H.P.)

The Department of Botany, Eternal University Baru Sahib, which is certified and registered with ISO 9001:2015 and ISO 10002:2014 for graduate and advanced studies, is working on exploitation of biodiversity of medicinal plants distirict sirmour, H.P.

The Context:

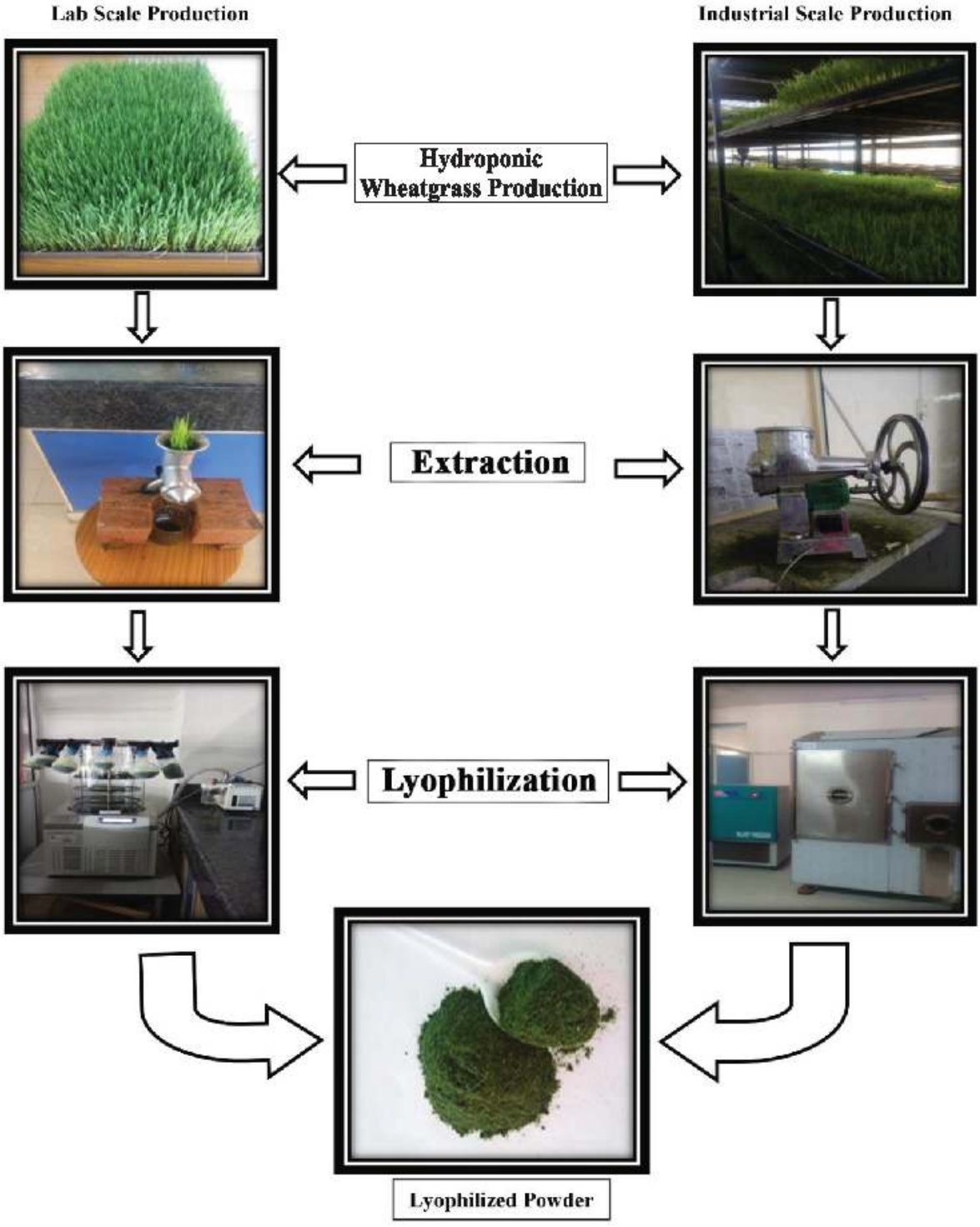
The use of herbal medicine involving medicinal and aromatic plants has attracted large section of the consumers due to their low cost and less/no side effects. Medicinal plants based flora deals with the Sirmour District situated in North-Western Himalayan region with the luxuriant vegetation, fascinated the botanists ever since 1817. Baru Sahib and its adjoining areas are very rich in medicinal and aromatic plants wealth. Therefore, to fulfil the huge gap related to proper exploration, use and maintenance of medicinal plants wealth of mid-Himalayan region here at Baru Sahib and to get ultimate outcomes in the above said fields one should has to work on various R&D parameters viz., biodiversity, characterization of phytoconstituents, molecular characterization/ genetic diversity analysis, bioactivities and finally formation of herbal products.

Ongoing Research Activities

- Botanical-cum-Herbal Garden has also been established under the Department of Botany. More than 50 species of medicinal and aromatic plants has been planted initially.
- A pilot plant has also been developed at Eternal University Baru Sahib by Jivo Wellness Pvt. Ltd. for Wheatgrass Juice Powder and related products viz. Wheatgrass based soft drink (Health Drink) has been developed by the Department of Botany and further manufacturing as well marketing will be done by Jivo Wellness Pvt. Ltd. Beside this, Department is also engaged in the development of various wheatgrass based products like, Probiotic drinks, various ranges of herbal capsules and cosmetics (Face wash and Face Creams).
- Evaluation of cytomorphological, phytochemical, pharmacological, morpho-anatomical and RAPD marker assisted profiling, in-vitro biological activities aspects of various genus viz., Ajuga, Phyllanthus, Taraxacum, Valeriana, Berberis, Dioscorea, Gentiana, Plectranthus, Colebrookea, Scutellaria, Adhatoda, Tinospora, Physalis, Withania etc.
- Isolation and characterization of few active components responsible for anti-cancer and

anti-cholestrolemic activities from Physalis angulata (L.) on the basis of GCMS, LCMS, NMR has been done.

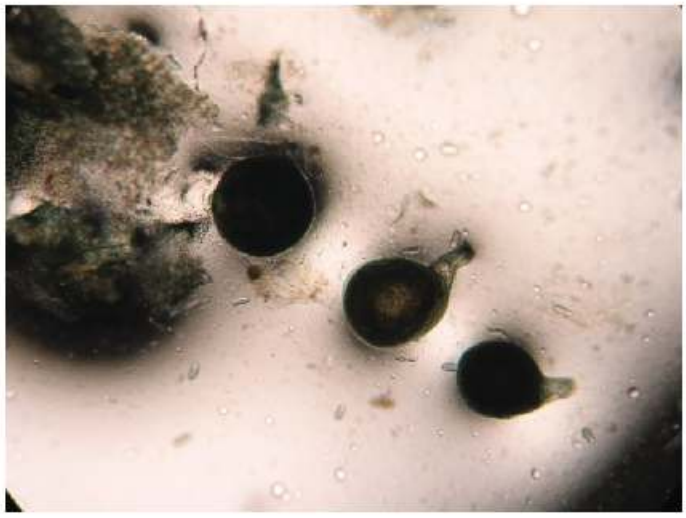
- Identified two morphotypes of Withania somnifera (L.) and collected more than 50 germplasm of same species from Northern India and maintained in the EU Botanical garden, cytomorphological and phytochemical characterization have been completed and compiled on the basis of HPLC, HPTLC, GCMS, LCMS, NMR and metabolomics. Few in vitro activities have also compiled for these two selected morphotypes.



laboratory and pilot production of wheatgrass powder

4. Survey of Nematode fauna of District Sirmour

Tomato (*Solanum lycopersicum* L.) is one of the most important solanaceous crops grown under both open field and protected conditions in Himachal Pradesh. The main tomato growing districts Solan and Sirmour lying in the mid hills of the state and it is the main cash crop of this region. Of the biotic factors responsible for losses to the tomato crop, plant-parasitic nematodes also plays an important role. Nematodes occur regularly year after year causing massive decline in yield. Our study comprised a survey for the incidence of root knot nematode (Genus: *Meloidogyne*) from tomato crop rhizospheres, grown in open fields, located in and around district Sirmour, Himachal Pradesh. Results revealed the presence of *Meloidogyne incognita, Helicotylenchus dihystera, Tylenchorhynchus mashhoodi* and *Pratylenchus coffeae* along with some predatory and free living nematodes. The work on molecular characterization to assess the genetic diversity, based upon the analysis of ribosomal intergenic spacer region is in progress Root Knot nematode damge in tomato roots.



Entomopathogenic Nematodes

Survey for entomopathogenic nematodes (EPNs) was conducted in different districts of Himachal Pradesh during 2017. In all, 30 soil samples from 7 locations were analysed for the occurrence of the nematodes by soil baiting technique. The frequency of occurrence of these nematodes in samples was very low. The nematodes were found in one locations i.e. Rajgarh (Distt. Sirmour). The nematodes collected from this location were identified as Heterorhabditis.

List of Research Projects of PG Students

- Ultrasonic study and rheological properties of glycerol monostearate.
- Determination of critical micellar concentration and molecular interactions of stearalkonium chloride.
- Synthesis and characterization of some novel pyrazole derivatives.
- Synthesis of novel tetra hyroindazole derivatives via vilsmeier haack reaction.
- Study of harmonic function and solution of laplace equation through different methods.
- A study on measurable theory.
- Study the effect of aluminium doping on nickel site in nanostructured nickel ferrite.
- Influence of magnesium substitution on nickel site in nanostructured nickel ferrite.
- The doping effect of magnesium on nickel site in nanostructured nickel ferrite.
- Influence of aluminium substitution on nickel site in nanostructured nickel ferrite.
- Effect of magnesium doping on nickel site in nanostructured nickel ferrite.

- The doping effect of aluminium on nickel site in nanostructured nickel ferrite.
- Ecofriendly management of fruit fly and fruit borer complex in tomato (Ms. Avantika)
- Ecofriendly management of pod borer (*Helicoverpa armigera* and *Maruca vitrata*) in french beans (Ms. Shweta)
- Morphological and molecular characterization of root knot nematode (*Meloidogyne* spp.) Infesting tomato crop in Himachal Pradesh (Ms. Aparna Kaistha)
- Isolation and characterization of entomopathogenic nematodes from various fruit orchards of Himachal Pradesh (Ms. Simranjeet Kaur)
- Bionomics and management of fruit fly, *Bactrocera* spp. in cucumber (Ms. Preety)
- Biological control of tomato fruit borer, *Helicoverpa armigera* Hubner (Ms. Reena Devi)
- Mass rearing of *Zygogramma bicolorata* for biological control of *Parthenium hysterophorus* (Ms. Nidhi)
- Studies on prevalence of gastrointestinal helminth parasites in domesticated large ruminants inhabiting rural areas of Sirmaur, Himachal Pradesh (Ms. Puja Kumari Chauhan)
- Biological control of plant parasitic nematodes associated with capsicum (capsicum annuum l.) (Ms. Karamveer Kaur)
- Studies on prevalence of gastrointestinal helminth parasites in domesticated small ruminants inhabiting rural areas of Sirmaur, Himachal Pradesh (Ms. Pooja Devi Gautam)
- Nutritional evaluation and utilization of different cultivars of foxtail millet (*Setaria italica*) for the development of functional foods (Ms. Amandeep Kaur)
- Study of antinutrient profile and micronutrient dialyzability in biofortified staple cereals under phytase treatment (Ms. Shailja Verma)
- Cytomorphological, phytochemical and biomolecular evaluation of germplasm of *Withania somnifera* (L.) Dunal and *Tinospora cordifolia* Miers ex Hook F.Thoms from north-west India (Anisha Bano)
- Exploration of cytomorphological, genetic and phytochemical, variability in different species of genus *Physalis* (Navdeep Sharma)
- Phytochemical characterization and bioactivity analysis of wheat seedlings (*Triticum aestivum* L.) for formulation of new herbal products (Nandita Thakur)
- Evaluation of cytomorphological, phytochemical and pharmacological aspects of genus *Valeriana* (L.)- A threatened understory medicinal herb (Anjali)
- Cyto-morphometric aided DNA marker study in *Plectranthus rugosus* (Lamiaceae) from Baru Sahib area of Himachal Pradesh. (Arti Sharma)
- Evaluation of antioxidant and cytotoxic activities of *Ajuga parviflora* Benth. collected from Baru Sahib, Sirmour (Harish Kumar)
- Botanical and phyto-pharmacological exploration of genus *Berberis* (L.) From Himachal Pradesh (India) (Himani Guleria)
- DNA marker study and phytochemical screening in *Colebrookea oppositifolia* Sm. for in-vitro biological activities (Kajal Dhadwal)
- Cytomorphological and phytochemical characterization of genus *Dioscorea*-a highly threatened Himalayan medicinal plant (Manisha Sharma)
- Morpho-anatomical and RAPD marker assisted study in wild *Scutellaria repens* (Lamiaceae) from Baru Sahib area of Himachal Pradesh. (Neha Kumar)
- Evaluation of antioxidant and anticancer activities of *Taraxacum officinale* (L.) Weber ex F.H. Wigg. (Ranjana Kumari)
- Botanical and phyto-pharmacological exploration of genus *Gentiana* (L.) From Himachal Pradesh (India)-a critically endangered medicinal plant (Shagun Sharma)
- In-vitro study for antibacterial and antifungal activity of *Justicia adhatoda* from Baru Sahib (H.P) (Sulakshna Chauhan)
- Study the effect of aluminium doping on nickel site in nanostructured nickel ferrite. (Roman Ayoub)
- The influence of magnesium substitution on nickel site in nanostructured nickel ferrite. (Arun)
- The doping effect of magnesium on nickel site in nanostructured nickel ferrite. (Gurpreet Kaur)
- Influence of aluminium substitution on nickel site in nanostructured nickel ferrite. (Sukhwinder Kaur)
- Effect of magnesium doping on nickel site in nanostructured nickel ferrite. Amit Sharma)
- The doping effect of aluminium on nickel site in nanostructured nickel ferrite. (Sunny Choudhary)

Akal Collage of Arts & Social Sciences

The Akal College of Arts and Social Sciences is a unique set of its lofty ideals as enunciated by our founder Saint, Sant Attar Singh Ji when he said, "Students must engage themselves in right earnest to the task of getting the required knowledge, both spiritual and worldly so as to become the messengers of peace and spiritual brother-hood; imbued with love and compassion they should serve the downtrodden and the neediest of the needy and thereby help in establishing permanent peace in the world".

Akal College of Arts and Social Sciences is divided into three wings. **The Department of Divine Music & Spiritualism** was established in the year 2008. The objective for setting up this institute was a holistic approach of imparting knowledge in the field of Music (both Vocal & Instrumental), following Guru- Shishya-Paramapra, the system in which Indian traditional music was nurtured and thrived for centuries. During 2016-17, the students from BA Music and MA Music (all streams) undertook more than 120 tours to perform all over the country.

The Department of Languages was established in 2009. The Dept. offers a three years programme leading to Bachelor of Arts (B. A.) Humanities and a two years degree programme for M. A. in English and Ph. D. Main objective of the university in establishing this department was to build impressive linguistic capacities of students and also enable them to design models of interpretation and explanations through strategic thinking.

Faculty in the department are committed to research and teaching in areas that span a wide range of historical and geographical contexts including Indian, British, Canadian, American, South Asian, African, and Caribbean literature and culture. This diversity is matched by the array of conceptual approaches that they are bringing to bear on these topics.

The Department of Psychology offers a B.Sc. (Hons.) programme started in 2016. It is a modern and progressive area of study, which is currently experiencing unprecedented development.

New Appointments

Sr. No	Name	Designation
1	Dr. Rekha Sethi	Assistant Professor
2.	Dr Kuldeep Raj Sharma	Assistant Professor

List of Research Projects of PG Students

- Migrancy and Cultural Differences in the Novels of VS Naipaul. (Jagjeet Singh)
- *Sirmour jile ke dharmik mele tatha unke bhakti sangeet aayojno mei prayukt lok vaadya yantro kee bhoomika.*

Akal College of Economics, Commerce and Management

Akal College of Economics, Commerce and Management is offering undergraduate and postgraduate degree programmes in the relevant disciplines. The College offers three year degree programmes viz, B.Sc.(Hons.) Economics and B. Com. (Hons.). The College is also offering M.Sc. Economics, M.Com and MBA programmes with specialization in Marketing, Finance, Human Resource Management, Health Care and Agri-Business Management. The College is also offering Ph.D. in Economics.

The teachers of the college have active research interest which ensures that teaching is relevant and reflects latest developments in the relevant disciplines. Teaching in the college is a mixture of lectures, seminars and workshops. It aims to improve student's written and oral proficiency, their presentation in English and communication skills. The extra classes of English and Mathematics are conducted for the weak students whenever required. To update the knowledge of students special lectures from eminent scholars are arranged frequently.

The College aims at producing highly trained young professionals in Economics, Commerce and Management to assume responsibilities for managing industry, agro-business, finance, banking, insurance, business and trade. The College has also undertaken many projects which help in studying consumer's behavior, measuring employee's satisfaction, studying impact of health status on economic development and role of service areas like banking & insurance.

New Appointments

Sr. No.	Name	Designation
1	Dr. R. C. Sharma	Associate Professor
2	Dr. Varun Mahajan	Assistant Professor
3	Dr. Jai Kumar	Assistant Professor
4	Dr. Satish Tiwari	Assistant Professor
5	Dr. R. Ravi	Associate Professor
6	Mr. Amit Kumar	Assistant Professor

List of Research Projects of PG Students

- A study of service quality of the ICICI bank (Akhil Tomar)
- A study on brand preference of mobile phones among Eternal University students
- A comparative study of job satisfaction between public and private school academicians at higher secondary level Amritsar district (Amandeep Kaur)
- A study on credit appraisal process and repayment of loan in HDFC bank (Anjali)
- Impact of employees satisfaction on patient satisfaction in private hospitals (Anju Kumari)
- A study of employee retention strategies in BPO industry (Arashdeep Singh)
- Effect of training and development on employees performance in banking sector: a special reference to district Kangra (Diksha)
- A study of customer perception towards products of Life Insurance Corporation of India (Gurvijay Singh)
- A study on quality of work life with special reference to Mahindra & Mahindra Ltd, tractor division Rudrapur (Gurwinder Kaur)
- A study on the impact of innovation in marketing on customer attraction

(Kamalpreet Kaur)

- A study on employees motivation in Pukhraj Health Care Pvt. Ltd. (Manjot Kaur Dhaliwal)
- A study on customer perception and satisfaction towards harbal products of Patanjali in Bilaspur city. (Nishant Sharma)
- Financial performance analysis of SBI & ICICI banks. (Rajat Agrawal)
- Analysis on women investment behavior: an empirical evidence from Rudrapur (Sakshi Bedi)
- A comparative analysis of secondary teacher satisfaction of private and public schools in Amritsar distt. (Sukhdeep Kaur)
- Impact of dividend payout of financial performance in banking industry. (Vimaldeep Kaur)
- Brand preference on smart phone users (Hemlata Kashyap)
- A comparative study on home loans with special reference to SBI and HDFC banks (Raju Kaur)
- Employees satisfaction in National Fertilizer Limited (Veer Devinder Pal)
- The impact of celebrity endorsement of consumer buying behavior (Parvinder Kaur)
- A study on service quality and customer satisfaction on Mcdonalds' (Poorva Maheswhari)
- A comparative study on the consumer behavior and experience between two shopping malls in Gurgaon. (Supreet Kaur)
- Knowledge utilization and challenges in e-banking services: a comparative study of (SBI) and (HDFC) bank in Ambala city (Baljinder Kaur)
- A study of sericulture in context of J&K. (Milandeep Kaur)
- Structural changes in the economy of H.P. (Prabhjeet Kaur)
- Maize cultivation in H.P. (Harpinder Kaur)
- Vegetable crops in H.P. (Manpreet Kaur)

Akal College of Nursing

Akal College of Nursing was established in the year 2008 by the Kalgidhar Trust Baru Sahib and was approved by the Himachal Pradesh Nursing Registration Council and Indian Nursing Council, New Delhi. Since then the college is offering B.Sc. Nursing (4 year) course admitting 60 students annually to train and prepare professionally competent and dedicated nurse, imbibed with the spirit of service to humanity and capable of facing various challenges while rendering nursing care at primary, secondary and territory levels.

Akal College of nursing, the first college in Himachal Pradesh was accredited by the President of Indian Nursing council, New Delhi vide Resolution No. 138/02/August/2008 of dated 14th October 2008 & approved by H.P. Registration Council. The institution is also accredited by the Indian Nursing council, New Delhi for M.Sc. Nursing Programme with intake capacity of 25 seats from 2013-14.

Akal College of Nursing strives to provide value based scientific education, and to develop skills for achieving the highest level of professional competence and to inculcate the qualities of disciplined living, honesty, integrity, diligence and dedication so that the Nursing students should become outstanding nurses & global citizens with the nerves of steel and compassionate heart.

New Appointments

Sr. No.	Name	Designation
1.	Dr. Lekha Viswanath	Professor
2.	Mrs. Jansi Kesava	Associate Professor
3.	Ms. Neelima	Assistant Professor
4.	Ms. Sangeeta Sharma	Nursing Tutor
5.	Ms. Pratibha Thakur	Nursing Tutor
6.	Ms. Isha	Nursing Tutor
7.	Ms. Rashmi	Nursing Tutor

List of Research Projects of PG Students

1. Comparative effectiveness of different proportions of magnesium sulfate with glycerine on superficial thrombophebitis, Specialty: Med-Surg Nursing, (Geeta Verma)
2. Effectiveness of preoperative teaching programme on reduction of anxiety among patients undergoing abdominal surgery , Specialty: Med-Surg Nursing, (Monika Thakur)
3. Effectiveness of music therapy on reduction of pain level among cancer patients, Specialty: Med-Surg Nursing, (Navjeet Kaur)
4. Effectiveness of valsalva maneuver on pain perception during peripheral IV cannulation, Specialty: Med-Surg Nursing, (Nitasha Sharma)
5. Effectiveness of balloon therapy on promotion of breathing efficiency among patients with selected respiratory tract disorders, Specialty: Med-Surg Nursing, (Palavi)
6. Risk factors of Diabetes Mellitus among adults residing in selected areas of Dist. Sirmour, Specialty: Med-Surg Nursing, (Savita Kumari)
7. Effectiveness of warm turmeric mouth wash versus warm saline mouth wash on prevention of oral mucositis among cancer patients, Specialty: Med-Surg Nursing, (Sukhvinder)
8. Effectiveness of hot water foot immersion therapy on temperature among patients with fever, Specialty: Med-Surg Nursing, (Tamanna

Chauhan)

9. Effectiveness of structured teaching programme on knowledge regarding home care management among care providers of patients with plaster cast , Specialty: Med-Surg Nursing, (Yanjana Kashyap)
10. Effectiveness of birthing ball on labour pain during first stage of labour and selected fetomaternal parameters among primigravida, Specialty: OBG Nursing, (Jyoti Sharma)
11. Effect of Audio assisted relaxation on level of blood pressure among mothers with Pregnancy Induced Hypertension , Specialty: OBG Nursing, (Shashi bala)
12. Risk factors and awareness regarding anemia among the pregnant women with anemia , Specialty: OBG Nursing, (Surya Rashmi)
13. Exploratory study on the level of stress among mothers of children admitted in pediatric intensive care unit, Specialty: Child Health Nursing, (Kavita Verma)
14. Effect of coconut oil massage on weight gain and selected physiological parameters among preterm hospitalized infants, Specialty: Child Health Nursing,(Kiran)
15. Effectiveness of video assisted teaching on knowledge regarding prevention & first aid management of home accidents among mothers of under five children, Specialty: Child Health Nursing,(Monika Thakur)
16. Prevalence and associated risk factors of malnutrition among under-five children, Specialty: Child Health Nursing, (Priyanka Devi)
17. Assessment of knowledge, attitude and practice of nurses related to administration of chemotherapy in children with a view to develop a nursing management protocol, Specialty: Child Health Nursing, (Vidhi Paul)

Akal College of Education

Under the aegis of the Eternal University, Akal College of Education is the premier institute exclusively for girl students who would like to excel and make their career in the field of education.

There are-of late –many innovative changes in the school education system in India bringing about radical changes in the pedagogy and approaches to primary and the secondary education. We have adopted these practices in our schools at Baru Sahib and these provide unique, first hand and indepth learning environment not only for the students but also the budding teachers-particularly during their school internship.

Our B.Ed. programme is very well supported by experienced and competent faculty, well equipped library and various laboratories.

Visiting Faculty

Sr. No.	Name	Designation
1	Dr. Juss Kaur Magon	Assistant Professor
2	Ms. Subha	Assistant Professor
3	Ms. Mansa Pandey	Assistant Professor

PUBLICATIONS DURING 2016-17

I. Books Authored/Edited

1. Arora R and Sandhu S (eds) (2017) Breeding Insect Resistant Crops for Sustainable Agriculture. Springer, Singapore

II. Chapters in Books

1. Arora R and Sandhu S (2017) Insect-plant interrelationships. In: Arora R and Sandhu S (eds) Breeding Insect Resistant Crops for Sustainable Agriculture. Springer, Singapore, pp 1-44.
2. Arora R, Kataria SK and Singh P (2017) Breeding for insect resistance in cotton: Advances and future perspectives. In: Arora R and Sandhu S (eds) Breeding Insect Resistant Crops for Sustainable Agriculture. Springer, Singapore, pp 265-288.
3. Sharma S, Kooner R and Arora R (2017) Insect pests and crop losses. In: Arora R and Sandhu S (eds) Breeding Insect Resistant Crops for Sustainable Agriculture. Springer, Singapore, pp 45-66.
4. Taggar GK and Arora R (2017) Insect biotypes and host plant resistance. In: Arora R and Sandhu S (eds) Breeding Insect Resistant Crops for Sustainable Agriculture. Springer Singapore, pp 387-421.
5. Arora R and Aggarwal N (2016) Effect of climate change on arthropod biodiversity. In: Jaglan RS, Yadav S and Yadav SS (eds) Effect of Climate Change on Incidence of Insect Pests. Proceedings of the Advanced Training Course, ICAR-CAFT, Department of Entomology, CCS HAU, Hisar, pp. 19-27.
6. Arora R and Suri KS (2016) Climate resilient pest management for sustainable agriculture. In: Jaglan RS, Yadav S and Yadav SS (eds) Effect of Climate Change on Incidence of Insect Pests. Proceedings of the Advanced Training Course, ICAR-CAFT, Department of Entomology, CCS HAU, Hisar, pp. 144-149.
7. Chhuneja P, Kaur S, Dhaliwal H (2016) Introgression and exploitation of biotic stress tolerance from related wild species in wheat cultivars. In: Molecular breeding for sustainable crop improvement. Springer, pp 269-324
8. Yadav AN, Verma P, Kumar V, Sangwan P, Mishra S, Panjiar N, Gupta VK, Saxena AK (2017) Biodiversity of the Genus Penicillium in Different Habitats. New and Future Developments in Microbial Biotechnology and Bioengineering, pp 1-18.
9. Sangwan P, Kumar V (2016) An Insight into Plant Growth and Metabolism in Relation to Hexavalent Chromium. Recent Advances in Plant Stress Physiology pp 265-282
10. Neelam K, Kumar K, Dhaliwal HS, Singh K (2016) Introgression and exploitation of QTL for yield and yield components from related wild species in rice cultivars. In: Molecular Breeding for Sustainable Crop Improvement. Springer, pp 171-202
11. Gupta N, Debnath S, Sharma S, Sharma P, Purohit J (2017) Role of Nutrients in Controlling the Plant Diseases in Sustainable Agriculture. In: Agriculturally Important Microbes for Sustainable Agriculture. Springer, pp 217-262
12. Singh, Simranjit, (2016) ਪੰਜਾਬੀਅਤ ਦੀ ਕੈਨਵਸ 'ਤੇ ਮਲਵਈ ਹੋਅਰਆਂ ਦੀ ਰਸ਼ਿਤਆਂ ਸਬੰਧੀ ਮਹੀਨ ਚਤਿਰਕਾਰੀ In: Singh B. (Ed.),ਲੋਕ ਕਾਵ ਚੁਪ ਦੋਹੇ ਦਾ ਅਧਐਨ, Gracious Books, Patiala, pp 9-79.
13. Singh, Simranjit, (2016) ਪਆਸ : ਤੁਰਦੇ ਹੋਏ ਪੈਰਾਂ ਦੀ ਗਾਥਾ" Kaur S. (Ed.) ਅਮਰਜੀਤ ਕੈਕੇ ਦੀ ਕਵਤਿਾ: ਸਵੈ-ਚਤਿਨ ਤੋ ਯੁੱਗ-ਚੇਤਨਾ ਤੱਕ , Parteek Publications Patiala, pp 61-69.

III. Research Articles

Akal College of Agriculture

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ON GOING RESEARCH PROJECTS

Name of the Project	Name of the Principal Investigator	Name of the Department	Year of Award	Amount sanctioned in (Rs)
Screening iron, zinc and carotenoid bioavailability from biofortified staple crops using coupled in vitro digestion/Caco-2 cell model	Dr. Vinod Kumar Sangwan	Biotechnology	16.12.2015	36,49,600/-
Improvement of end use quality of 1BL/1Rs. Translocation containing wheat varieties by removing of Sec-1 and retaining Glu-B3 using marker assisted back cross breeding	Dr. Rahul Kumar	Biotechnology	11.05.2015	55,00,000/-
Cloud based digital resource centre for remote rural area	Dr. P.S. Cheema	Engineering & Technology	18.10.2016	8,61,000/-
Linear Fresnel Reflector(LFR) concentrator based solar water purification system	Dr. P.S. Cheema	Engineering & Technology	04.03.2017	7,90,000/-
Design of low cost solar water heating system using flat plate collector for remote area application	Dr. Ruhit Jyoti Konwar	Renewable Energy	18.10.2016	8,50,000/-
Characterization of late blight disease from major tomato growing areas of H.P. and development of IDM strategy	Dr. Sushma Sharma	Agriculture	01.04.2017	19,00,000/-
Functional properties of electro- and magnetostrictive materials based on transition metal oxides synthesized by hydrothermal sol-gel method (INT/RUS/RFBR/P-299)	Dr. Radheshyam Rai	Physics	24.05.2017	12,00,000/-

STUDENT STRENGTH in 2016-17

Name of College	Sr. No.	Name of the Course	Students Physically Strength	
			Male	Female
Akal College of Economics, Commerce & Management	1	B.Sc. (Hons.) Economics	-	40
	2	B.Com. (Hons.)	-	57
	3	M.Sc. Economics	3	6
	4	MBA	6	17
	5	M.Com.		2
	6	Ph.D. Economics	1	1
Akal College of Arts & Social Sciences	7	B.A. Humanities	-	82
	8	B.A. Music	-	70
	9	B.Sc. (Hons.) Psychology	-	12
	10	M.A. Music	-	11
	11	Ph.D. Music	-	1
	12	Ph.D. English	1	-
Akal College of Health & Allied Sciences	13	B.Sc. Nursing	-	235
	14	M.Sc. Nursing	-	30
	15	MPH	10	15
Akal College of Agriculture	16	B.Tech. Food Technology	-	33
	17	B.Sc. Agriculture (Hons.)	-	138
	18	M.Sc. Food Technology	-	4
	19	M.Sc. Biotechnology	4	5
	20	Ph.D. Biotechnology	3	9
Akal College of Engineering & Technology	21	B.Tech. ECE	-	18
	22	B.tech. ECE (Lateral)	-	9
	23	B.Tech. CSE	-	76
	24	B.Tech. CSE (Lateral)	-	15
	25	B.Tech. CSE (Migrated)	-	2
	26	B.Tech. EEE	-	12
	27	B.Tech. EEE (Lateral)	-	3
	28	M.Tech. ECE	-	2
	29	M.Tech. CSE	-	3
	30	M.Tech. Renewable Energy	14	7
	31	Ph.D. CSE	1	1
Akal College of Basic Sciences	32	B.Sc. Medical	-	24
	33	B.Sc. Non-Medical	-	28
	34	B.Sc. (Hons.) Chemistry	-	3
	35	B.Sc. (Hons.) Physics	-	3
	36	B.Sc. (Hons.) Maths	-	4
	37	B.Sc. (Hons.) Microbiology	-	5
	38	M.Sc. Chemistry	1	8
	39	M.Sc. Physics	6	5
	40	M.Sc. Maths	-	5
	41	M.Sc. Zoology	-	11
	42	M.Sc. Botany	1	10
	43	Ph.D. Chemistry	1	2
	44	Ph.D. Biochemistry	1	-
	45	Ph.D. Physics	1	3
Akal College of Education	46	B.Ed.	-	27
		Total	**54**	**1054**

STUDENTS PLACEMENT

2016-17 batch passing out student have been placed successfully is companies. Students have been provided multiple opportunities of career in their respective steams. Placement of engineering and nursing remained on fairly high percentage as opportunities in the streams is good. Some of our passed out students have also got opportunities abroad for higher studies

Sr. No.	Branch	Total Eligible Students	Total Students Placed	Opted for Higher Studies	Preparing for Out of India Location	Not In Job
1	Engineering	68	38	14	12	4
2	Management	12	8	4	-	-
3	Music	21	15	4	-	2
4	Nursing	57	44	6	4	3
5	Public Health	15	9	1	1	4
6	M.Sc.	07	02	04	01	-
7	M.Tech.	04	04	-	-	-
8	B.Sc. (ALL)	46	-	46	-	-
	Total	**230**	**120**	**79**	**18**	**13**

Eternal University

(World peace through value based education)

Ref : EU/VCO/UO/95

Date : March 06th, 2017

NOTIFICATION

In pursuance of clause 21 of Eternal University (Establishment and Regulations) Act No-3 of 2009 and Clause 24(i) of The First Statutes of Eternal University, the Hon'ble Chancellor of Eternal University is pleased to reconstitute Internal Quality Assurance Cell consisting of the following members:

Dr. H.S. Chauhan	-	Chairperson
Dr. Davinder Singh	-	Member
Dr. Neelam Kaur	-	Member
Dr. Ajit Singh	-	Member
Dr. B.S. Boparai	-	Member
Dr. J.L.Sharma	-	Member
Dr. P S Cheema	-	Member
Dr. BS Sohal	-	Member
Dr. Lekha Vishwanath	-	Member
Mrs. Ranjit Kaur	-	Member
Dr. Purvi Luniyal	-	Member
Mr. B.S. Lamba	-	Member
Dr. Noor Danish Ahrar Mundari	-	Member
Mr. DK Sharma	-	Member
Dean of Students Welfare	-	Member
Training & Placement Officer	-	Member
Mrs. Raino Bhatia	-	Member
Dr. Sushma Sharma	-	Member
Ms Nandita Thakur	-	Member
Dr. Harpreet Kaur	-	Member
Jasmeet Singh/Karan Singh/Head C-dac	-	Member
Head HR Department Medanta Gurgaon	-	Member
Dr. Kulbhushan Kumar	-	Member Secretary

1. The aforesaid Committee will start functioning with immediate effect.
2. The required quorum of the meeting will be the presence of 1/3 members.

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Tele: 01799-276012, Fax: 01799-276006, Mob. 9816400624
E-mail : contact@eternaluniversity.edu.in Web site: www.eternaluniversity.edu.in

Eternal University

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3. The Chairperson and Member Secretary will be responsible to hold regular meetings of the Cell at least one in a month.
4. The Deans/Principals/HODs and other members will take active parts in the meeting of the Cell.
5. The member Secretary will submit the proceeding of each meeting duly approved by the Chairperson to the undersigned for further action.

This will repeal the previous Notification No EU/VCO/072/74 dated August 19th, 2015.

H.S. Dhaliwal

(Dr. H.S. Dhaliwal)
Vice Chancellor
Eternal University

Vice Chancellor
Eternal University
Baru Sahib (H.P.) 173101

Copy to:

All concerned

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MINORITY CERTIFICATE TO ETERNAL UNIVERSITY

सत्यमेव जयते

भारत सरकार
राष्ट्रीय अल्पसंख्यक शैक्षणिक संस्था आयोग
GOVERNMENT OF INDIA
NATIONAL COMMISSION FOR MINORITY EDUCATIONAL INSTITUTIONS

827

गेट नं. ४, प्रथम तल, जीवन तारा भवन, ५ संसद मार्ग
पटेल चौक, नई दिल्ली - ११० ००१
Gate No. 4, 1st Floor, Jeevan Tara Building, 5, Sansad Marg
Patel Chowk, New Delhi - 110 001

Dated.....

C E R T I F I C A T E

THIS IS TO CERTIFY THAT BY THE ORDER DATED 27TH DAY OF MAY 2016 PASSED BY THE NATIONAL COMMISSION FOR MINORITY EDUCATIONAL INSTITUTIONS, NEW DELHI IN CASE NO. 2735 OF 2013 (ETERNAL UNIVERSITY, BARU SAHIB, DIST. SIRMOUR, HIMACHAL PRADESH, VS. DEPUTY SECRETARY, EDUCATION DEPARTMENT (HIGHER), GOVERNMENT OF HIMACHAL PRADESH), ETERNAL UNIVERSITY RUN BY THE KALGIDHAR TRUST, HAS BEEN DECLARED AS A MINORITY EDUCATIONAL INSTITUTION COVERED UNDER SECTION 2(g) OF THE NATIONAL COMMISSION FOR MINORITY EDUCATIONAL INSTITUTIONS ACT, 2004.

GIVEN UNDER MY HAND AND THE SEAL OF THE COMMISSION ON THIS 27TH DAY OF MAY, 2016.

National Commission For Minority Educational Institutions ★ Delhi ★

(RITA CHATTERJEE)
SECRETARY

भारत सरकार
युवा कार्यक्रम और खेल मंत्रालय
क्षेत्रीय निदेशालय, राष्ट्रीय सेवा योजना
चण्डीगढ़

Government of India
Ministry of Youth Affairs and Sports
Regional Directorate, National Service Scheme
Chandigarh

संपी : 3 (11) रा0 से0 यो0/ चंडीगढ /2017/२८१

दिनांक : 06, जून , 2017

सेवा में

डा . एच. एस. धालीवाल
उप-कुलपति
एटर्नल यूनिवर्सिटी , बारु साहिब,
सिरमौर, हिमाचल प्रदेश

विषय - स्वंय वित्त पोषित राष्ट्रीय सेवा योजना ईकाई की स्वीकृति - संबंधी,

आदरणीय महोदय ,

उपरोक्त विषय पर आपके पत्र दिनांक 25 मई , 2017 के संदर्भ में राष्ट्रीय सेवा योजना राज्य अधिकारी हिमाचल प्रदेश ने दिनांक 26 मई , 2017 को मेल द्वारा अपनी संस्तुति इस निदेशालय को अग्रेषित की है इस सन्दर्भ मे आपके विश्वविद्यालय को राष्ट्रीय सेवा योजना ईकाई खोलने की स्वीकृति निम्न लिखित शर्तों के साथ प्रदान की जाती है :

1) राष्ट्रीय सेवा योजना ईकाई का आरम्भ शिक्षा सत्र 2017-18 से आरम्भ होना चाहिए।
2) राष्ट्रीय सेवा योजना ईकाई को भारत सरकार , युवा कार्यक्रम और खेल मंत्रालय और इस निदेशालय तथा राज्य शासन के सभी दिशा निर्देशों का अक्षरश : पालन करना चाहिए । (विस्तृत जानकारी इंटरनेट पर www.nss.nic.in के अंतर्गत NSS Manual 2006 पर उपलब्ध)
3) राष्ट्रीय सेवा योजना ईकाई कार्यकाल तीन वर्ष सत्र (2019-20) तक संतोषजनक राष्ट्रीय सेवा योजना गतिविधियों और समयानुसार सही रिपोर्टिंग के आधार पर ही जारी रखा जायेगा । तीन वर्ष पश्चात इसको जारी रखने हेतु राष्ट्रीय सेवा योजना सलाहकार समिति अथवा एस. एफ. यू. कमेटी द्वारा अनुमोदन अनिवार्य होगा, अन्यथा रा. से. यो. ईकाई की स्वीकृति स्वत : निरस्त मानी जाएगी ।
4) राष्ट्रीय सेवा योजना ईकाई में स्वयंसेवक किसी भी विषय से लिए जा सकते है जिनको नियमानुसार दो वर्ष में 240 घंटे सामुदायिक सेवा एवं एक रा. से. यो. विशेष शिविर में प्रतिभागिता अनिवार्य होगी ।
5) नियमानुसार सभी प्रकार की रा. से. यो. गतिविधियों की मासिक, वार्षिक एवं समय - समय पर मांगी गई रिपोर्ट अद्यतन जानकारी अपने राष्ट्रीय सेवा योजना राज्य अधिकारी एवं इस क्षेत्रीय निदेशालय को प्रेषित करनी होगी ।
6) किसी भी स्तर या अवसर पर यह पाया गया कि रा. से. यो. ईकाई की गतिविधियाँ संतोषजनक नहीं है , रिपोर्टिंग त्रुटि पूर्ण अथवा देरी से की गई है तो क्षेत्रीय निदेशालय किसी भी समय रा. से. यो. की स्वीकृति एवं मान्यता रद्द कर सकता है ।

क्षेत्रीय निदेशक , राष्ट्रीय सेवा योजना , राज्य अधिकारी , राष्ट्रीय सेवा योजना अथवा उसके प्रतिनिधि ईकाई, की गतिविधियों को देखने एवं उनका आंकलन करने के लिए आपकी आपके विश्वविद्यालय में आ सकते है अतः आपसे उस दौरान पूर्ण सहयोग एवं अद्यतन जानकारी उपलब्ध करवाने की अपेक्षा की जाती है ।

राष्ट्रीय सेवा योजना विश्व का सबसे विशाल स्वयंसेवक छात्र संगठन है । आशा है कि आपकी राष्ट्रीय सेवा योजना ईकाई बेहतर सामाजिक कार्यों में योगदान देकर अपने संस्थान , राज्य एवं देश को गौरवान्वित करेगी ।

भवदीय

(सुभाष चंद)
क्षेत्रीय निदेशक

प्रतिलिपि:

1 डॉ . एच . एल. शर्मा, राज्य राष्ट्रीय सेवा योजना अधिकारी, शिमला (हि0 प्र0)
2 गार्ड फाईल

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MAJOR ACHIEVEMENTS OF UNIVERSITY

1. Living Legend Award

On behalf of Living India News, a program was organized in Chandigarh under 'The Living Legend Award Banner' ... In this program, Power Minister of Punjab Government Rana Gurjeet Singh were the Chief guest. The program started with lighting of lamp by Power Minister Rana Gurjeet Singh, Ashok Tanwar of Haryana, TS Shergill, Raj Kumar Virka, Sheetal Vij and Chanel's CEO, Angadeep Singh. There was a huge crowd and hundreds of people were present to witness this programe. Punjab's famous Sufi singer Lakhwinder Singh Wadali performed and kept the audiences spell bound with his Sufiyana style singing ... Living India News Channel has awarded 15 achievement awards in different fields .In particular, Sant Baba Iqbal Singh Ji of Baru Sahib were honored with "Life Time Achievement Award". On this occasion, SP Oberoi, Paramjit Singh, Radha Soni, Amarjeet Kaur, Yogesh Middha, Akhil Boxer, Anupam, Kapil Sharma, Satish Retroyant S.P., Ashmita Mehla, Mahavir Fogat, Aminit Sher Singh and Gaurav were also honored.

Punjab Power Minister Rana Gurjit Singh awarded Baba Iqbal Singh ji of Baru Sahib with Lifetime Achievement Award in the Field of education. 129 Akal Academies and two Universities, spread in far fledged areas of rural Punjab, Haryana and Himachal Pradesh are being run under the able guidance of Baba Iqbal Singh ji. The Minister gave a passionate speech and introduced Babaji himself amongst audience. He recalled his association with Babaji when he was a Peas grower in UP and how Babaji guided him on Peas seeds. He told the audience that Babaji's guidance helped him a lot in whatever he has achieved in life. He said that we should salute the spirit of Babaji and support his mission.

2. CM Awarded HP Environment Leadership Award to Eternal University

Himachal Pradesh Chief Minister Sh. Virbhadra Singh on July 15, 2017, gave the HP Environment Leadership Awards to acknowledge the commendable job done by institutions and individuals to protect the states flora, fauna and environment. In the first prize category the awards comprised of Rs. 50,000 and a citation followed by the Second prize of Rs. 25,000 and citation besides certificates of appreciation.

The government has introduced 'Himachal Pradesh Environment Leadership Awards' to be conferred annually to recognize the outstanding contribution by institutions or individuals in the promotion of environmental protection and conservation and sustainable development through inspiring and exemplary initiatives, vision, transformative action on their own. The individuals, NGOs, institutions from various categories are shortlisted for the award through a competitive process.

The Akal College of Engineering and Technology, Eternal University, Baru Sahib was awarded with 2nd prize, citation and a certificate of appreciation for adopting renewable sources of energy by installing solar water heater system 16000 liters per day and using solar thermic community cooking system for 100 percent population of Badu Sahib village and rotating drum methods for disposal of 50-60 kilograms of biodegradable waste.

CONFERENCES, SYMPOSIA, WORKSHOPS ORGANISED

Sixth International Nursing Conference on Bridging the Gap between Theory and Practice in Nursing

The management of the Kalgidhar Trust under the divine leadership of Hon'ble Baba Iqbal Singh Ji organised 6th International Conferences on subject theme, Bridging the Gap between Theory and Practice in Nursing" on October 21-22, 2016. The conference took a lead in the presence of eminent dignitaries from abroad and from across the country. The resource persons included faculty from Drexel University, USA, and renowned personalities of the nursing fraternity.

Prof. H.S Dhaliwal Vice Chancellor, Eternal University Baru Sahib declared the open the 6th International Nursing Conference. Dr. Davinder Singh, Registrar, Eternal University introduced the gathering with a glimpse of the trust. Dr. Neelam Kaur, Dean, Faculty of Health and Allied Sciences' reflected the concept of spiritual nursing at Akal College of Nursing. She explained about nursing education at Akal College of Nursing strives to provide value based scientific skills for achieving the highest level of professional competency and to inculcate the qualities of disciplined living, honesty, integrity, diligence and dedication, so that nursing students should become outstanding nurses and global citizens with the nerves of steel and compassionate heart.

Inaugural address was given by Honourable Dr. K. P. Chaudhary, Director of Research and Medical Education, Himachal Pradesh, who graced the occasion as the Chief Guest. Dr. M.S Atwal, Founding Vice Chancellor, Eternal Global University, Kalgidhar Trust U.S.A shared his experience with Babaji and history and evolution of Kalgidhar Trust and its constituent universities. Hon'ble Baba Iqbal Singh Ji, Chancellor, EU, Baru Sahib and President, Kalgidhar Trust, enlightened the gathering with words of dignity.

Prof. Brian (Assistant Clinical Professor, Drexel University, College of Nursing, Philadelphia, USA) unfold the theme of the 6th International Nursing Conference. Dr. Achala D. Gaikwaid, Organizing Secretary & Assistant Professor, gave an overview about the conference.

The participants included Dr. Jill B Derstine (Associate Clinical Professor, Drexel University College of Nursing, Philadelphia U.S.A, Prof. Dr. Chander Sarin (Principal, Rayat Bahara College of Nursing, Mohali, Chandigarh), Prof. Dr. Rafiqa Bashir, (Principal, Rajiv Gandhi College of Nursing, J & K). Dr. K. Lalitha, Professor and head, department of Nursing (NIMHANS), Banglore & Dr. Haseena Wani, Nursing Superintendent and in-charge of Nursing Administration, SKIMS, J & K. Dr. Raman Kalia, Principal, Saraswati College of Nursing, Mohali Chandigarh & Mrs .Kijum Sora Karga, Deputy Director of Nursing cum Registrar, Arunachal Pradesh. Prof. Tara Shah, Professor in B.P. Koirala Institute of Health Sciences, Dharon, Nepal Dr. Jasjeet Atwal, Founder member, EGU, The K T, USA. Dr. Marylou McHugh, Associate Clinical Professor, Drexel University College of Nursing, Philadelphia, U.S.A. Dr. Selva Titus Chacko, Dean and professor of nursing, CMC Vellore, India. The best delegate of the conference prize was gave to Mrs. Santha Lakshmi

In the Valedictory session, report of the conference was presented by Dr. Lekha Vishwanath, Professor, ACN. Dr. Neelam Kaur hounoured the resourse persons of the conference. Mrs. Ranjit Kour, Principal, Akal College of Nursing announced the results of oral paper presentation/poster presentation followed by distribution of certificates. In paper presentation first, second & third prize were given to Dr. Shueli Sen, Ms. Ranbir Kaur & Ms. Karthika S. Poster presentation winner was Ms. Isha, Nursing Tutor, ACN, Baru Sahib

NATIONAL CONFERENCE ON "ADVANCES IN FOOD SCIENCE AND TECHNOLOGY"

A two days' national conference on "Advances in Food Science and Technology: Current Trends and Future Perspectives" was held on March 24-25, 2017 at Eternal University, Baru Sahib, Sirmour. The conference was conducted by partial sponsorship from Department of Science and Technology (DST), Govt. of India.

In the conference nearly 350 delegates from about 50 reputed institutions participated. There were eight invited talks including two speakers from NDRI, Karnal, two from National Agri-Food Biotechnology Institute Mohali, two from Guru Jambheshwar University of Science & Technology, Hisar (HR), one from Maharishi Dayanand University (MDU), Rohtak (HR) and one more expert from Mondelez (Cadbury) Baddi (HP) for delivering industry oriented talk.

The Conference was inaugurated by worthy Chief Guest Dr. H. C. Sharma, Hon'ble Vice Chancellor, Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni, Solan (HP). Hon'ble Baba Iqbal Singh Ji, Chancellor Eternal University, Baru Sahib enlightened and blessed the delegates with visionary and divine thoughts of Brahamavidya, spiritual brotherhood, advancement of science for noble cause and importance of biotechnology in today's perspective.

Dr. Davinder Singh, Registrar, Eternal University welcomed Hon'ble Baba Iqbal Singh Ji and the delegates participating in the conference. Dr. Singh shared the holy dream and mission of revered saints, Sant Attar Singh Ji, Sant Teja Singh Ji and vision of Hon'ble Baba Iqbal Singh Ji. He also mentioned the importance of the divine valley, education for all, scientific knowledge amalgamated with spiritual training, peace.

Dr. H. S. Dhaliwal, Vice Chancellor, Eternal University, Baru Sahib emphasized the need to develop and utilized bio-fortified cereals such as micronutrients (Iron & Zinc) enriched wheat, rice, maize, finger millet varieties to eradicate malnutrition and hunger from the developing countries of the world. The technical sessions were chaired by Dr. BS Shohal (Eternal University, Baru Sahib), Dr. Alka Sharma (GJUST, Hisar), Dr. Rak Malik (NDRI, Karnal) and Dr. Sumit Arora, (NDRI, Karnal).

The valedictory session was graced with the presence of Hon'ble Chief Guest Dr. D.K. Sharma, Ex-principal Secretary, Govt. of Himachal Pradesh. The invited guests and speakers were honored on this occasion and certificates were also distributed to the winners of oral and poster presentations. Dr. Naveen Kumar from Shoolini University, Solan was presented with the 'Young Scientist Award'.

INTERNATIONAL CONFERENCE ON INNOVATIVE RESEARCH IN ENGINEERING SCIENCE & TECHNOLOGY

2nd International Conference "Innovative Research in Engineering, Science & Technology" (IREST-2017) was organized by Akal College of Engineering and Technology at Eternal University from 7-8 April, 2017. The conference was organized in collaboration with Vigyan Prasar, Noida an affiliate of the Department of Science and Technology, Govt. of India, New Delhi.

The inauguration of the conference was accomplished by Prof. M. S. Saini, Director, Guru Nanak Dev Engineering college, Ludhiana. The welcome address was delivered by honorable VC, Prof. H S Dhaliwal. More than 120 Research papers were presented by the researchers on the topics of their domain ranging from basic science, engineering, medical science, agriculture, biotechnology and so on. About 80 posters were also presented by the students from different institutions.

SCIENCE EXHIBITION AND WORKSHOP

A Science Exhibition and Workshop was organised as a side event of the International Conference on Innovative Research in Engineering, Science and Technology on April 7-8, 2017 at Eternal University, Baru Sahib. The event was organised in collaboration with Vigyan Prasar, Noida, Department of Science and Technology, Government of India and the state Council for science, Technology and Environment, HP, Shimla at Bhai Gurdas Hall of the University.

The inaugural program of the exhibition and workshop event was attended by Hon'ble Chief Guest, Dr. Manohar Singh Saini, Director, GNDEC, Ludhiana; Dr. B. K. Tyagi, Scientist E, Vigyan Prasar, Govt of India, New Delhi; Mr. R V Balasubramaniam Iyer, Vice President, Reliance JioInfocomm Limited, Mumbai; Dr. Manmohan S. Atwal, Founding Chancellor, Eternal Global University, USA; Dr. Rajendra Dobhal, Director General, UCOST, Govt. of

Uttarakhand; Dr. Neelam Gulati Sharma, Director, Punjab SCST, Govt. of Punjab and Dr. H.S. Dhaliwal, Vice Chancellor, Eternal University Baru Sahib along with other dignitaries from Eternal University.

The Science Exhibition and Workshop was attended by more than 100 student participants of school level (10th to 10+2) from various schools of Dist. Sirmour and around 150 students from Haryana and Punjab affiliated to eight Akal Academies of Kalgidhar Trust, Baru Sahib. Overall, the Science Exhibition and Workshop was organized in such a way that maximum exposure can be given to all students about various domains of science. For this purpose, the first half of day one was divided in 5 parallel workshops including Astronomy and model rocketry, Robotics, Hydroponics, and LED making. Different students in groups (max. 60) were registered in these workshops with a representation of students from each school in each workshop. In these workshops, children were provided with hands on training in these specific areas by experts in these domains of science. The experts were, Mr. Deepak Sharma (Model Rocketry), Dr. Rohini (Astronomy), Mr. Yogesh Bhatt (LED Making), Dr. Javed Alam (Hydroponics), Mr. Sashwat Ratan (Robotics). Dr. Biman Basu, Ex-Editor of Science Reporter, New Delhi presented a very informative lecture after parallel workshop for all the participants on "Emerging Career Opportunities in Science". Dr. Manmohan Singh Marwaha from Chandigarh have presented his demonstration lecture with the use of innovative models on "Innovative experiments in Physics and Low cost teaching aids" which was useful to both students and teachers. Mr. Deepak Sharma and Dr. Rohini organized the 'Sky Night Watch Event' using Telescope in the evening time. Mr. Rajpal Panchyal, presented a talk on "Science behind so called miracles". Dr. C. M. Nautiyal, eminent scientist, presented a talk on "Radiocarbon Dating in unraveling the mysteries in Histories".

Another interesting part was specific Film Shows provided by Vigyan Prasar NOIDA. A separate event as "Competition for students" was also organized and winners of the events were provided prizes in following themes and categories, 1. Traditional technologies of Himachal Pradesh and Understanding the science behind them (Model Making); 2. Save biodiversity of Himachal Pradesh (Poster Making); 3. biodiversity of Himachal Pradesh (Poem & Song writing); 4. Save natural resources of Himachal Pradesh using science & technology (Declamation).

Science Exhibition and posters display was also organized as a part of this event where more than 50 posters were displayed on themes including Science and Technology Daily life, Mathematics, Indian Scientists, Indian Space programme etc. It was inaugurated by Dr. Rajendra Dobhal, Dr. Neelam Gulati Sharma, Dr. B. K. Tyagi, Mrs. R.V. Balasubramanium. A Panel Discussions on topic "Status of Science Communication in India: Emerging Trends" was also conducted as a part of workshop and scientists who have participating in panel discussion were Dr. H. S. Dhaliwal, Dr.Rajendra Dobhal, Dr. Neelam Gulati Sharma, Shri Biman Basu, Dr.B.K.Tyagi, Prof. S. S. Chandel, Dr. Chandra Mohan Nautiyal.

WORKSHOP ON "INTELLECTUAL PROPERTY RIGHTS: ISSUES AND CHALLENGES (IPRIC-2017)"

A one day workshop on "Intellectual Property Rights: Issues and Challenges" on March 14, 2017 was organized by the Intellectual Property Rights Cell, Eternal University, University Baru Sahib through financial support of Department of Science and Technology (DST), State Council for Science, Technology and Environment (SCSTE), Shimla, in association with Himachal Pradesh Patent Information Centre (HPPIC) The workshop was organized under four sessions including, inaugural, valedictory and two technical sessions. The workshop was attended by nearly 250 participants including invited speakers, faculty members, research scholars and postgraduate students of Eternal University. There were seven invited lectures including three speakers from HPPIC Shimla, two from Eternal University and two from outside as subject and legal experts.

The inaugural session was chaired by Dr. H.S. Dhaliwal, Honorable Vice Chancellor Eternal University and Dr. Ramesh Arora, Nodal officer, IPR cell, EU, Baru Sahib served as the Organizing Secretary, IPRIC-2017. The keynote lecture on the topic 'Plant Variety Protection in India' was delivered by the Guest of Honour, Dr. Manoj Srivastava, Ex-Registrar, Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA), Govt. of India, New Delhi.

The valedictory session was graced with the presence of Hon'ble Chief Guest, Sh. Kunal M. Satyarthi, Joint Member Secretary, State Council for Science, Technology and Environment (SCSTE), Shimla and it was chaired by Dr. H.S. Dhaliwal. Sh. Satyarthi was instrumental in giving his inspirational speech on IPR related facts based on his experience in the Council. The invited guests and speakers were also honoured on this occasion.

NATIONAL CONFERENCE ON GOODS AND SERVICES TAX AND EMPLOYABILITY SKILLS

A one day conference of 'Goods and Services Tax and Employability Skills' was organised at EU, Baru Sahib on 29th April, 2017. Main objective of the conference was to educate and provide information to the faculty and students on Goods and services tax to be implemented by Government of India from July 2017 onwards. The speakers of the conference were Dr. Vinod Kaushik and Mr Anshul Srivastawa, both chartered Accountants from Delhi. Dr H S Dhaliwal Vice Chancellor of the University chaired the conference. Audience were made aware in detail, about the process, structure, rules, tax benefits and future efficiency in business transactions through policy, Initiatives.

IMPORTANT EVENTS ORGANISED

University Convocation

Our students, it signifies the completion of years of hard work and the beginning of an exciting new chapter in their lives. Convocation is a time to look optimistically into the future, to share in centuries-old academic traditions and, most importantly, to celebrate our graduates.

The Eternal University held 4th convocation on October 14, 2016, was a day of fulfillment for the 230 students who received a degree or certificate this year, including 181 undergraduates and 49 students post graduate. A number of outstanding students bagged the University Medals, Memorial Awards for Excellence and Merit Certificates as well as Medal for Outstanding Achievements. Students were eagerly awaiting the moment with bated breath, counting the numbers waiting for their turn to go up on the podium and collect the certificates and medals from the Hon'ble Chancellor Sh. Iqbal Singh (Baba Ji), keeping alive the time-honored traditions of educational institutions. Also in attendance were Hon'ble Chancellor Sh. Iqbal Singh (Baba Ji), Vice Chancellor Prof. (Dr) Harcharn Singh Dhaliwal, Founder Vice Chancellor Dr Manmohan Singh Attawal, Chief Guest Dr Jeet Singh Sandhu, Deputy Director General (Crop Sciences) Indian Council of Agricultural Research, New Delhi, Registrar Eternal University Dr. Davinder Singh and many more luminaries.

Offering salutation to Baba Ji, the Vice Chancellor Dr. HS Dhaliwal gave the formal welcome address and presented the 'Report' of Eternal University for the year 2016. In his report, he presented the vision, the mission and highlighted the achievement of the university during the receding years and approval of the new courses and project for the future.

He revealed that the University has made considerable progress in research and development front in the last one year and a substantial funding has been received by the University through new sponsored research and consultancy projects during the year. He also touched upon all other salient developments including publications, collaborations & collaborative research, awards, distinguished visitors, student activities, placement etc.

The convocation ceremony was declared open by Baba Iqbal Singh Ji, Chancellor Eternal University. Dr BS Bhoparai, Dean Akal College of Agriculture, presented 02 students from M.Sc. Biotechnology and 02 from M.Sc. Food Technology whose names were set out in the list, and who had been examined and found qualified for the Degree of M. Sc. to which he prayed that they might be admitted. Dr PS Cheema, Dean Akal College of Sciences and Technology presented 04 students of M.Tech. and 68 students of B. Tech.; Dr Neelam Kaur, Dean Akal College of Health and Allied Sciences presented 76 students. Out of them, 15 students of MPH were presented by Dr HS Chauhan, Dean, Public Health, 17students of M. Sc. Nursing and 44 students of B. Sc. Nursing were presented by Ms Ranjeet Kaur, Principal Akal College of Nursing; Dr JL Sharma presented 05 students of MBA, 01 student of MA Economics and 17 students of B.Sc. (Hons.) Economics; Dr Purvi Luniyal, Dean Akal

College of Arts and Social Sciences presented 21 students of BA Music and 02 of BA Humanities. In the absence of Dr BS Sohal, Dean Akal college of Basic Sciences, on behalf of him Dr BS Boparai presented 01 student from M.Sc. Physics, 02 students from M.Sc. Chemistry, 18 students from B.Sc. Non-Medical and 11 students from B.Sc. Medical Science for the award of degrees in the respective subjects. After the distribution of degrees the oath taking of the degree recipients was conducted by Dr HS Dhaliwal, Vice Chancellor, Eternal University. Chief Guest J.S Sandhu awarded the Medals for outstanding achievement to the toppers of the session 2015-16. University awarded two Gold Medals for outstanding achievements:

1. Ms Varonika Kour B.Tech (ECE), Akal College of Engg. and Technology and
2. Ms Sangeeta Sharma (M.Sc. Nursing), Akal College of Health and Allied Sciences.

The of University Medals were awarded to toppers of different programmes.

1. M. Sc. Nursing – Ms Pratibha Khagta
2. M. Sc. Nursing – Ms Sangeeta Sharma
3. MPH – Ms Shraddha Parajuli
4. B. Sc. (Hons.) Economics – Ms Navjot Kaur
5. B. Tech. CSE -- Ms Tanmeet Kaur
6. B. Tech. ECE – Ms Avinash Preet Kaur
7. B.Sc. Non-Medical – Ms KM Navdeep Kaur
8. B.Sc. Medical – Ms Jaspreet Kaur
9. BA Music (Instrumental) – Ms Prabhsimran Kaur
10. B. Sc. Nursing – Ms Gagandeep Kaur

The University awarded 'Certificate of Merit' to 46 students who were successful in gaining 80% or above marks. In addition university Medals and cash awards were conferred on the brilliant students for the excellence in their respective subject/discipline:

The Founder Vice-Chancellor and the Guest of Honour, Eternal University, Dr MS Atwal appreciated the efforts made by the University and the progress made during the tenure of Dr HS Dhaliwal as the Vice Chancellor. Chief Guest. Dr. J.S. Sandhu, Deputy Director General (Crop Sciences) ICAR, New Delhi in his address stressed upon the need for value based education in the present context. He expounded that Eternal University has been actively engaged in translating into reality the vision of the great visionary of 20th Century Sant Attar Singh while educating the youth to cultivate the minds imbued with the spirit of enquiry, quest for knowledge, respect for diverse world culture and a keen desire to serve the community in which they live.

Baba Iqbal Singh Ji, Chancellor, Eternal University in his Presidential Address expounded that merely by getting of a degree one cannot become a good human being. One can become a good human being only when one ensures good deeds and interprets what he/she has learnt in practice for the betterment of the humanity. If everybody strives hard to spread the message of divine peace and spiritual brotherhood in this world, it is but sure that in this very era the Satyuga or truthfulness will prevail.

Celebration of Independence Day on 15th August, 2016

Pledge to Promote Integrity and Eradicate Corruption on 31st October 2016

Eternal University observed Vigilance Awareness Week on 31st October, 2016 with a pledge taking ceremony in which management, faculty, Staff and Students of Eternal University took the pledge for the integrity and transparency. The Week renewed our commitment to achieve the goals of promoting integrity, transparency and accountability in public life.

The Central Vigilance Commission, as part of its efforts to promote probity in public life and to achieve a corruption free society, observes Vigilance Awareness Week every year. The week in which 31st October, the birthday of late Sardar Vallabhbhai Patel falls is observed as Vigilance Awareness Week.

"Public Participation in Promoting Integrity and Eradicating Corruption" has been chosen as theme for Vigilance Awareness Week this year by the Commission. The Commission believes that creation of greater awareness among public and their participation in anti-corruption efforts would strengthen the resolve to eliminate corruption from society. The Commission had appealed to all stakeholders for wide participation and all around generation of awareness among all sections of society commenced with the pledge taking.

23rd Him Gold Cup National Women's Hockey Tournament on 10th November, 2016

23rd Him Gold Cup National Women's Hockey Tournament was played from Nov. 10 to Nov. 13, 2016, at Eternal University, Baru Sahib. Hockey tournament was sponsored by the Abhilashi University and Hockey Him under the flagship of Hockey India. Women's Hockey Tournament is played every year and teams from different states participate in this tournament. This year, the tournament was hosted by the Eternal University, Baru Sahib and all the matches were played at Baru Sahib in the University Play Ground.

The teams were divided in two pools and from each pool highest scoring team entered in to the final. Final match was played between North Railway and Sai Hissar in which Northen Railway defeated Sai Hissar in shootout by 5-3 and won 'Abhilashi University Him Gold Cup Women's Hockey Gold Trophy'.

2nd Annual Sports Day on 3rd December, 2016

Annual Sports Day is an important event in every institutions life. The 2nd Annual Sports Day of Eternal University was conducted on 3rd of December 2016. With a great deal of planning, practicing and hard work had gone into organizing this event filled the day.

The Sports Day began enthusiastically with a welcome speech by our Hon'ble Vice Chancellor Dr. HS Dhaliwal, The ground looked colorful glowing white, flaming orange and striking green and the dignitaries took the salute from the march-past students which was followed by 'oath taking' ceremony by the athletes. To enliven the sports event, the Olympic torch was up taken by the students. In his brief lecture, Dr DK Sharma explained the importance of sports and games in a student's life & encouraged the students to have sportsmanship in every sphere of life. The Hon'ble Vice Chancellor emphasized all students of this University should use their energy for the holy cause by utilizing the facilities provided to them in the university. He stressed that sports and games take a person's life to a higher level. He gave a call to all the students to build a strong nation.

The one-day sports meet involved the enthusiastic participation of all the students from various colleges of the University. Students actively participated in both track and field events. The ground was filled with cheer, gaiety and excitement whenever any event's result was announced. The participants mesmerized the audience with their energetic performances. The year 2016 saw a rich crop of trophies and shields being harvested by our players and athletes

International Mother Language Day Celebration on 21st February, 2017

To promote the awareness of linguistic, cultural diversity and multilingualism, Bhai Vir Singh Sahit Club of Punjabi Department, Eternal University, Baru Sahib celebrated International Mother Language Day (IMLD) on dated 21st February, 2017 in the university auditorium. During the event, students from several departments viz. Humanities, Music, Psychology, Economics, Education etc. participated in the various contests and activities.

International Women's Day on 8th March, 2017

"Don't let anyone tell you you're weak because you're a woman". - Mary Kom

International Women's Day is celebrated all over the world with great zeal and passion on 8th of March to increase the awareness about women's rights. The day is celebrated to show respect, appreciation and love towards women for the economic, political, social achievements. Various events are organized on this day across the world, which are specifically focused on women. The theme for 2017 international Women's Day is "Be Bold for Change."

Eternal University this year celebrated the day as an occasion to inspire commitment to the future challenges that women face in making further progress. A skit on the theme of women empowerment was played by the B.Ed. Students. Students of MPH, B.Tech. and Nursing College enthralled the audience while introducing to them, the renowned feminine personalities from India and abroad. Students from B.Tech. Sem. II displayed power of a woman through their 'Nukkad Natak'

Kisan Mela Organised on 12-13th April, 2017

The Eternal University, Baru Sahib organised a two-day Kisan Mela on April 12-12, 2017 at the Baru Sahib campus with the theme of "Functional Foods for Nutrition and Health Security". A large number of farmers from District Sirmour, HP and various parts of Punjab enthusiastically participated in the Mela. Now technologies in the field of crop production, crop protection, horticulture, food processing and biotechnology were demonstrated by the scientists of the university for the benefit of farmers and farm women. Various allied departments of HP Govt including agriculture forestry, animal husbandry and Gramin Udhyan Vibhag along with several private agri- entrepreneurs also show cased their activities through their stalls.

The Mela was inaugurated by Sh. Balbir Chand Badaliya, District Collector of Sirmour who exhorted the farmers to adopt new technologies to maximize their incomes and reap benefits from various government schemes. Dr B.S. Boparai Dean, Akal College of Agriculture emphasized the importance of improved varieties of quality protein maize in nutritional security. The innovative wheatgrass products like 'Pani Puri' by the Department of Botany drew huge crowed of farmers, visitors and students.

The stall by the Centre for Public Health and Healthcare Administration, EU, Baru Sahib attracted lots of visitors to know about their blood pressure, body-mass, index (BMI) and oral health. The faculty and scholars advised the people on nutritional diet and nutritional regimen for diabetes, hypertension and other lifestyle diseases. They also emphasized the importance of meditation. yoga, and healthy lifestyle.

During the mela, kisan ghoshti (scientist-farmer interaction), exhibition, felicitation of innovative farmers, distribution of literature for farmers was part of the event. The main attraction of the mela was the on-site showcasing of crop cafeteria demonstrating the castor hybrids and varieties released. The inspiring mela was not only the stage for transfer of new technology but also guided the fine-tuning of technologies to suit the farmers and farming system of the state especially of District Sirmour.

Talent Hunt on 27th May, 2017

Giving the students a platform to showcase their talent, 'Talent Hunt' competition was organized by the Eternal University on May 27, 2017

Dr HS Dhaliwal, Vice-Chancellor Eternal University delivered the presidential address and congratulated the students for their efforts and enthusiastic participation in the programme.

EU

World Environment Day on 5th june, 2017

Every year, June 5 is celebrated as World Environment Day with a new theme. This year the theme was "Connecting People to Nature". This theme implores us to go outdoors and appreciate nature's beauty and importance, and take forward the call to protect the planet Earth.

Akal College of Agriculture, the organizers of the event celebrated the day as an occasion to raise global awareness and to explain the significance of healthy environment and to solve various environmental issues by implementing some actions to protect nature and earth, leading to a positive and healthy environment. Chief Guest Dr. Davender Singh, Registrar, Eternal University and Secretary, Kalgidhar Trust, Baru Sahib was the Chief Guest of the occasion. He stated the about the importance of nature and how it is being polluted by us. He stressed upon the strategies to be followed to save the nature through various means and methods. He expounded, "Create an environment that does not need protection. I don't want you and me to protect this environment; with your help, I want to create an environment which doesn't need protection".

International Yoga Day on 21st June, 2017

Antarashtriya Yog Divas or International Day of Yoga (IDY) is an annual event celebrated across the world on June 21 since its inception in 2015. The idea of IDY was the first proposed by our beloved Prime Minister Narendra Modi during his speech at the UNGA, on September 27, 2014. Later, IDY was declared unanimously by the United Nations General Assembly (UNGA) on December 11, 2014. Yoga is a physical, mental, and/or spiritual practice attributed mostly to India. The date of June 21 was suggested by the PM Modi in his UN address as it is the longest day of the year in the Northern Hemisphere and shares special significance in many parts of the world.

Eternal University celebrated International Yoga Day on 21st June, 2017 when all the students, management and faculty participated in the programme. The event took place under the capable guidance of Dr Lakhbir Kaur, Assistant Prof. in Physical Education. All the participants performed yoga as was demonstrated especially Pranayam & Surya-namskar .

Later, Dr Jaswant Singh, Dean Students' Welfare discussed about the importance of yoga in our daily life and its impact on human body. Dr HS Chauhan explained the benefits of Yoga and how it helps in the improvement of physical health by enhancing circulation of oxygenated blood in the body. This process helps in retaining the sense organs thereby inducing tranquility and serenity of mind, prevents psychosomatic disorders, improves an individual's resistance and ability to endure stressful situations.

FINANCIALS

THE KALGIDHAR TRUST: BARU SAHIB
(ETERNAL UNIVERSITY, BARU SAHIB)
CONSOLIDATED BALANCE SHEET AS AT 31st MARCH, 2017.

LIABILITIES	AMOUNT	TOTAL	ASSETS	AMOUNT	TOTAL
CORPUS			**FIXED ASSETS**		
As per Last B' Sheet	3,389,076.00		As per Schedule		233,194,595.58
Add: Corpus Donation	-				
Add: Assets from A/c.	-		**INVESTMENTS**		109,210,398.00
Less: Assets Tr.	-	3,389,076.00			
			CURRENT ASSETS, LOANS & ADVANCES		
INCOME & EXPENDITURE A/C			Loans & Advances		909,542.10
As per Last B'Sheet	37,118,048.86		Security Deposited		4,150,000.00
Add: Excess of Income for the yr.	(10,458,552.40)	26,659,496.46	Cash in Hand		75,072.00
			Bank Balances		1,208,665.80
SUBSIDY					
Him Urja		-	Other Assets		20,053,114.84
SECURED LOANS					
LOAN FROM BANK	99,704,274.00				
UNSECURED LOANS	-	99,704,274.00			
SECURITY REFUNDABLE					
Security Other	5,000.00				
Students	6,777,000.00				
Teachers	5,032,136.00	11,814,136.00			
CURRENT LIABILITIES & PROVISIONS					
Sundry Creditors		1,264,970.10			
Salary Payable		-			
Branch/ Division		225,969,435.76			
Total Rs.:-		**368,801,388.32**	**Total Rs.:-**		**368,801,388.32**

Note: Notes on accounts annexed.

(President)

Secretary
The Kalgidhar Trust

As per our report in Form No. 10B Annexed.
for K.N.Chandla & Co.
Chartered Accountants

(Dinesh Kumar Sood)
Partner

K.N. CHANDLA & CO. SHIMLA CHARTERED ACCOUNTANTS

Place: Shimla
Date: 25.September.2017

Figures are consolidated from the individual Statements of Engineering College,Nursing College & Eternal University

THE KALGIDHAR TRUST, BARUSAHIB: SIRMOUR
(ETERNAL UNIVERSITY, BARU SAHIB)
CONSOLIDATED SCHEDULE OF FIXED ASSETS AS ON 31st MARCH 2017.

PERTICULARS	Rate	Opening As on 01.04.16	Addition During the year	Sale/Tr.	Total As On 31.03.2017	Depreciation	Net Balance As On 31.03.2017
Land	0%	-	-	-	-	-	-
Building	5%	221,793,793.58	-	-	221,793,793.58	11,089,689.00	210,704,104.58
Building Under Const.	0%	-	-	-	-	-	-
Beddings	10%	444,100.00	-	-	444,100.00	44,410.00	399,690.00
Computer	60%	69,257.00	815,178.00	-	884,435.00	530,661.00	353,774.00
Craft & Art / Sports Material	15%	158,271.00	-	-	158,271.00	23,740.00	134,531.00
Electric Fan/Fittings/ Inst.	15%	467,881.00	-	-	467,881.00	70,182.00	397,699.00
Electronic/ TV/VCR/Projector Items	15%	858,770.00	28,200.00	-	886,970.00	133,046.00	753,924.00
EPBAX System	15%	57,255.00	-	-	57,255.00	8,588.00	48,667.00
Fire Fighting Equipments	15%	-	-	-	-	-	-
Furniture & Fixture	10%	1,306,130.00	-	-	1,306,130.00	130,613.00	1,175,517.00
Generator System	15%	-	-	-	-	-	-
Intercom/ Phones	15%	-	-	-	-	-	-
Internet Equipments (V Sat)	15%	123,345.00	-	-	123,345.00	18,502.00	104,843.00
Vehicles	15%	1,478,328.00	278,977.00	-	1,757,305.00	263,595.00	1,493,710.00
Laboratory Equipments	15%	13,068,259.00	1,099,004.00	-	14,167,263.00	2,125,090.00	12,042,173.00
Library Books	10%	3,259,631.00	34,557.00	-	3,294,188.00	329,419.00	2,964,769.00
Laundry Drycleaning Equipments	15%	-	-	-	-	-	-
Machinery	15%	115,332.00	797,200.00	-	912,532.00	136,880.00	775,652.00
Mobile/ Phone	15%	-	-	-	-	-	-
Music Equipments	15%	72,461.00	-	-	72,461.00	10,869.00	61,592.00
Photocopier & Typewriter	15%	-	-	-	-	-	-
Power Equipments	15%	-	-	-	-	-	-
Printers/ Photocopiers	15%	78,614.00	-	-	78,614.00	11,792.00	66,822.00
Printing / Cyclostyle/ Type Machine	15%	-	-	-	-	-	-
Refrigerator	15%	22,695.00	-	-	22,695.00	3,404.00	19,291.00
Sewing Machine	15%	-	-	-	-	-	-
Steam Boiler/Solar System/ Water Boiler	15%	235,914.00	-	-	235,914.00	35,387.00	200,527.00
Solar Cooking System	15%	-	-	-	-	-	-
Telephone	15%	11,299.00	-	-	11,299.00	1,695.00	9,604.00
Transformer	15%	-	-	-	-	-	-
Tube Well	15%	-	-	-	-	-	-
UPS/ Invertor	15%	468,330.00	91,168.00	-	559,498.00	83,925.00	475,573.00
Utensils	10%	244,620.00	-	-	244,620.00	24,462.00	220,158.00
Water Filter/ Aquaguards	15%	18,620.00	16,000.00	-	34,620.00	5,193.00	29,427.00
Water Cooler	15%	-	-	-	-	-	-
Water Pump	15%	-	-	-	-	-	-
Medical Equipments	15%	323,142.00	-	-	323,142.00	48,471.00	274,671.00
Live Stock	0%	-	487,877.00		487,877.00	-	487,877.00
Total Rs.:-		**244,676,047.58**	**3,648,161.00**	**-**	**248,324,208.58**	**15,129,613.00**	**233,194,595.58**

Secretary
The Kalgidhar Trust

K.N. CHANDLA & CO. SHIMLA CHARTERED ACCOUNTANTS

THE KALGIDHAR TRUST: BARU SAHIB
(ETERNAL UNIVERSITY, BARU SAHIB)
CONSOLIDATED INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2017.

EXPENDITURE	AMOUNT	TOTAL	INCOME	AMOUNT	TOTAL
To Administrative Expenses		25,055.00	By Donation		176,871.00
To Advertisement		2,318,530.36	By Interest on Fixed Deposits		7,582,762.00
To Affiliation/ Exam Fee		70,140.00	By Interest on Saving Bank Accounts		205,904.00
To Mess Expenses		126,321.00	By Miscellaneous Income		-
To Vehicle Expenses		51,755.00	By Kitchen Receipt		-
To Bank Charges		49,232.77	By Hostel charges		-
To Bedding		-	By Fees		78,486,335.63
To Books		-	By Recovery From Staff		5,601,323.00
To Building Maintenance		59,915.00	By Uniform		-
To Freight & Coolage		-	By Prospectus		306,800.00
To Depreciation		15,129,613.00	By Rent Received (Air Tel)		-
To Diesel		45,705.00	By Profit on Bonds		-
To Education/ Literacy		2,617,189.00	By Other Recovery		-
To Function Expenses		90,495.00	By Material		-
To Lab. Expenses		2,625,452.90	By Mediclaim		-
To Electricity Expenses		2,993,803.00	By Sale		-
To Subscription		763,983.00			-
To Help to Poor		7,029,415.00			
To Postal Exp		-	By Security Foefieted		-
To Agriculture & Forestry		483,831.00	By Grant in Aid	-	1,524,700.00
To Interest		7,430,936.00			-
To Property Tax		-			
To Medical aid		17,991.00			
To Miscellaneous Expenses		10,099.00			
To Newspaper & Periodicals		72,041.00			
To Postage & Telephone		740,685.00			
To Printing & Stationery		776,560.00			
To Penalty		-			
To Legal/Professional Charges		248,400.00			
To Refreshment		31,914.00			
To School Bags / Shoes		-			
To Repair & Maintenance		201,489.00			
To Salaries		58,494,001.00			
To Provident Fund		421,068.00			
To Staff /Students Welfare		84,987.00			
To Sport Exp		23,000.00			
To Rent/ Lease		40,962.00			
To Tollfery		-			
To Transport		-			
To Travelling		489,640.00			
To Examination/Counselling Expenses		779,039.00			
To Uniform		-			
To Security & Allied Services		-			
To Advance Written off		-			
To Insurance		-			
To Excess of Income Over Exp		(10,458,552.40)			
	Total Rs.:-	93,884,695.63		Total Rs.:-	93,884,695.63

(President)

(Secretary)
The Kalgidhar Trust

Annexure to the Balance Sheet
for K.N.Chandla & Co.
Chartered Accountants

(Dinesh Kumar Sood)
Partner

K.N. CHANDLA & CO. SHIMLA CHARTERED ACCOUNTANTS

Place: Shimla
Date: 25.September.2017

Annexture II Balance Sheet

Budget Income & Expenditure Statement

ETERNAL UNIVERSITY, BARU SAHIB
ESTIMATED INCOME & EXPENDITURE BUDGET
FOR THE FINANCIAL YEAR 2017-18

Sr. No.	Particulars	Appendix	Actual Budget 2015-16(In Lacs)	Projected Budget 2016-17(In Lacs)	Revised Budget 2016-17(In Lacs)	Projected Budget 2017-18 (In Lacs)	Remarks
	Income:	A					
1	Budgeted Collections from Students		836.80	3049.47	1268.67*	3369.71**	*(Decreased due to less intake of admission) **(Increased due to expectation of more students for existing & newly approved courses 2017-18)
2	Grant Biotech (DBT1-2012)		11.81	13.47	13.47*	0.00	*(Grant yet to be received 2016-17)
3	Grant Biotech (DBT-2-2015)		19.14	9.26	9.26*	9.26**	*(Full amount received in 2016-17) **(Proposed for salary & consumable)
4	Grant Biotech (Zinc and Carotenoid Bioavilability)(DBT-3-2015)		18.90	9.10	9.10*	9.10**	*(Grant yet to be received 2016-17) **(Proposed for salary & consumable)
5	Grant Food Technology & Nutrition (Ministry of Food Processing Industry)		34.83	0.00	0.00	0.00	
6	Grant Rnewable Energy (SCSTE/F(8)-1/2016)		0.00	0.00	4.25*	4.25**	*(Full Amount received in 2016-17) **(Proposed for Salary, Consumable, Travel & Other costs)
7	Grant Engineering & Technology (SCSTE/F(8)-1/2016)		0.00	0.00	4.30*	4.30**	*(Full Amount received in 2016-17) **(Proposed for Salary, Consumable, Travel & Other costs)
8	Budget Collection From Staff For Boarding & Lodging Services		66.77	60.00	70.50	80.00	
9	Interest on Fixed Deposits		80.55	110.00	90.46	90.00	
10	Dairy Complex		0	0.00	3.31	10.00	
	Total Income		1068.80	3251.30	1473.32	3576.62	
	Less: Budgeted Expenditure	B	699.57	1432.68	1256.95	1858.22	
	Excess of Income Over Expenditure (Budgeted Surplus)		369.23	1818.62	216.37**	1718.4*	

Note:- *Budget surplus increased due to expected increase in the student intake for existing & newly approved courses and proposed revised fee structure for the academic session 2017-18

**The surplus budget amount Rs. 216.37 lac will be transferrred to The Kalgidhar Trust for construciton of Agriculture College and Studios for the Engineering College.

ETERNAL UNIVERSITY Baru Sahib Dairy No. Date: 27th Feb, 20 Distt. Sirmour

(Dr. H.S. Dhaliwal)
Vice Chancellor
Eternal University Baru Sahib
Vice Chancellor
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