

BIIS Webinar

SITARE BIIS: Opportunity for technology students to work on grassroots innovations

SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) in collaboration with BIRAC (Biotechnology Industry Research Assistance Council, Department of Biotechnology, Govt. of India) is organising a three-week SITARE BIIS (Students Innovations for Translation & Advancement of Research Explorations-Biotech Innovation Ignition School) for validating, value-adding and product development around grassroots innovations. The BIIS will try to develop solutions for grassroots applications for humans, animals, and agricultural including herbal technologies, medical devices, and microbial applications.

This time due to COVID-19 pandemic we have conducted BIIS-5 course as a webinar started from June, 8-27, 2020, where the prime focus was to build the capacity of primarily undergraduate students to develop skills in the field of phytochemistry, pharmacognosy, extraction, separation of compounds, microbial diversity screening, pest control, development of extremely affordable solutions for farmers, livestock keepers, pastoralists, human applications, besides patent, biostatistics and ethical guidelines for work on grassroots knowledge and innovations.

There were total 47 students selected for BIIS-5 out of which 44 students were from Tier-II cities and 2 students were from aspirational district.

The topics for the online course BIIS-5 were designed based on following fields. As a part of webinar we had assigned some projects to the students primarily in five action-research areas drawing upon the Honey Bee Network Database:

1. Pharmacognosy/Phytochemistry
2. Soil Microbiology
3. Veterinary Medicine
4. Agriculture
5. Medical devices.

The reading material for each subject was shared with the selected students in advance. There were experts lectures arranged in various techniques of microbiology, phytochemical extraction procedures, live experiments and demonstration of lab equipment during the webinar. The topics covered and the expert details are shown in table below. Total 5 exams (2 descriptive types and 3 MCQ based) were conducted based on the expert lectures. Moreover there were 3 assignments given to the students, for assignment 1 they had to document the grassroots innovations, their problems and traditional knowledge from their grandparents, assignment 2 was aimed to write a review article and prior art search of the 3 problems/disease related to human, agriculture and veterinary; assignment 3 was given to design scientific protocol and detail proposal grassroots practices.

These students would receive an expert feedback on their proposals from the reviewers. **The assignment, quiz and work done by students during BIIS webinar are under assessment. The outstanding studies (up to 10 per BIIS) may be identified for further support of INR 1 lakh each as SITARE-Appreciation Award Grant.** The grantees are expected to conduct further research on the topic given either at home institution or at SRISTI's lab.

All the output will be credited to the grassroots knowledge providers and can be published thereafter with prior written concurrence of the BIIS team and knowledge providers.

The valedictory session of BIIS-5 (Biotech Innovation Ignition School) webinar on June 27th, 2020 was chaired by Dr Girish Sahni, former DG CSIR Secretary, DSIR, Govt. of India. During the last session students had shared their experience and feedback of BIIS webinar.

Table: Topics and experts details

Topics	Experts
Welcome and introductory remarks on grassroot innovations	Prof. Anil K Gupta, Founder-Honey Bee Network, Coordinator-SRISTI, GIAN, Visiting faculty-IIM-A & IIT-B
Role of BIRAC in nurturing biotech entrepreneurship	Ms. Shilpy Kochhar, Entrepreneurship Development Manager, DBT-BIRAC
Innovations and Entrepreneurship (Focus on Biotech Entrepreneurship)	Dr. Anand Bhadalkar, Joint Director (BD) ,GSBTM, DST, Govt. of Gujarat
Innovations and entrepreneurship	Dr. Vipin Kumar, Director, National Innovation Foundation, Grambharti
SodhYatra	Mr. Chetan Patel, SRISTI
Connection of Soil nutrition and human health	Dr Nirmal Sahay, Advisor-SRISTI, ; V. P. R & D - Super Crop Safe Ltd., At: Himmatpura (Bilodra) , Ta. Mansa; Dist. Gandhinagar, Gujarat
Traditional Vs Modern food : SRISTI's tradition food recipe database	Dr. Raksha Bhatt,Dietician, Bardoli and Mr. Ramesh Patel, SRISTI
Information on BIIS: grassroots practices validation and value addition	Dr. Megha Barot, BIRAC's SITARE BIIS Coordinator, SRISTI
Interaction with BIIS awardees and participants	Ms. Pragati singhal (worked on grassroots problem), Ms. Fasna Mustfa(grassroots practice for ectoparasite infestation in animal), Ms. Gopika (grassroots practice validation for mastitis) and Ms. Kavita Munjal (herbal formulation for obesity)
Creativity and coping at farm level through agro-biodiversity conservation for higher resilience to climate fluctuations.	Dr. Anamika Dey, CEO GIAN
Research Methodology	SRISTI Lab Team
IPR, Patent and Ethical framework for accessing and exploring people's knowledge and grassroots innovations	Mr. Anil Pandey Coordinator - CIIMSME Intellectual Property Facilitation Centre (IPFC) CII House, Gulbai Tekra Road Near Panchwati, Ahmedabad 380 006
Extraction, Isolation and purification techniques of Phytocompounds	Dr. Mamta Shah, LM College of Pharmacy, Ahmedabad, India.
Modern Techniques for Identification of Bioactive compounds and Dereplication Approach	Dr. Abhijit Kate, Assistant Profesor, NIPER, Ahmedabad, Gujarat, India.

Screening of Phytochemical compounds	Dr. Megha Barot, SRISTI
Soil microbial diversity and screening for industrial applications	Dr. Vijay Kothari, Assistant Professor, Institute of Science, Nirma University, Ahmedabad
Role of Microbes in sustainable agriculture	Dr. R V Vyas, VC Anand Agriculture University
Current issues in Agriculture, Role of herbal solution in agriculture problems and to improve yield	Dr. Nirmal S Sahay, Advisor-SRISTI; V. P. R & D - Super Crop Safe Ltd., At: Himmatpura (Bilodra) , Ta. Mansa; Dist. Gandhinagar, Gujarat
Importance of crop rotation and crop selection, soil health, and crop nutrition.	Dr. Arvind Pathak, Former Vice Chancellor, Agriculture University, Navsari and Junagadh, Gujarat
Herbal veterinary medicine	Dr. Aswin M Thaker, Department of Pharmacology and Toxicology, College of Veterinary Science and A.H., Anand Agricultural Uni- versity, Anand-388001, Gujarat state (INDIA).
Herbal Formulation and Quality control	Dr. Dinesh Kumar, Senior Principal Scientist, CSIR-CIMAP
Working and applications of general instruments in the field of biotechnology : UV-Vis Spectrophotometer, pH meter, Centrifuge, Microscopy, Autoclave	Dr. Preety Bansal, Post doc, Jamia millia, New Delhi.
Working and applications:HPLC	Dr. Shyam Reddy, SRISTI
Working and applications:HPTLC	Dr. Jayanta Kumar Maji, SRISTI
Working and applications:GC	Dr. Shyam Reddy, SRISTI
Working and applications:FTIR and Lyophilizer	Mr. Manan Shah, Research Scholar, Nirma University, Ahmedabad, Gujarat
Medical Devices: Basics and Applications	Dr. Shahila Parween, SRISTI
Biostatistics: Mean, Mode, Median, SE,SD, t-Test, ANOVA, biostatistics and experimental design	Dr. S R Dave, Xavier's Research Foundation (XRF)
Live experiments	SRISTI Lab Team
Live experiments	SRISTI Lab Team

Live experiment	SRISTI Lab Team
Valedictory session , Feedback and Discussion	Prof. Anil Gupta and Lab Team
Assignment-1 (Documentation of grassroots innovations, their problems and traditional knowledge)	Prof. Anil Gupta and Lab Team
Assignment-2 (Writing review article and prior art search of the 3 problems/disease related to human, agriculture and veterinary)	Prof. Anil Gupta and Lab Team
Assignment-3 (To design scientific protocol and detail proposal grassroots practices)	Prof. Anil Gupta and Lab Team
Total 5 exams (Descriptive type questions + MCQ based)	SRISTI Lab Team

