

DBT-Karnataka Skill Vigyan Program in Life Science and Biotechnology



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in Life Science & Biotechni



Department
of Biotechnology
Govt. of India

DBT – Karnataka Skill Vigyan Program in Life Science and Biotechnology

The Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India has initiated the establishment of Skill Vigyan Centres under its DBT Skill Vigyan State Partnership Program in Life Science and Biotechnology. Karnataka Innovation and Technology Society, a registered society with the brand name of K-tech under Department of Electronics, Information Technology, Biotechnology and Science & Technology, Government of Karnataka on the behalf of DBT is facilitating the establishment of Skill Vigyan Centres in the Karnataka state. This program has been designed for providing skill training under Entrepreneurship Development Program in Agricultural Biotechnology. The objective of this program is to develop the entrepreneurial abilities and enhance the skill sets required for entrepreneurship in plant tissue culture and enable a trainee to establish his / her own enterprise.

Entrepreneurship Skill Development Program in Agricultural Biotechnology (AGR/Q8101:Plant Tissue Culture Technician)

The demand for micropropagated plants in horticulture and forestry is growing rapidly. There is a large gap between the demand and supply of quality planting material. This clearly indicates a need for boosting the youths in setting up additional units, training manpower and supply quality plants with more competitive prices for improving the productivity and enhancing the socio-economic status of the farmers. Plant tissue culture has emerged as an important biotechnological tool to multiply elite varieties of high quality, disease free and high yielding plants rapidly in the laboratory irrespective of the season of the year. This training aims to master entrepreneurs on various

aspects of plant tissue culture namely laboratory layout & design, handling of equipments, media preparation, sterilization techniques, inoculation, culture maintenance, sub-culturing, *in vitro* rooting, hardening, genetic fidelity testing and virus indexing by molecular techniques, packing & marketing, industrial training, DPR preparation, funding sources, exposure visit to commercial industries and progressive farmers fields.

Training Module

Course content prescribed by Agriculture Skill Council of India: AGR/O8101:Plant Tissue Culture Technician

1.AGR /N8101 Adhere to sanitation and safety guidelines of the lab

KB1.Layout of the lab

KB2.Standard procedures to operate different equipments in the lab

KB3.Good lab practices

KB4.Importance of cleanliness & aseptic condition in the lab

KB5.Methods of lab cleaning, mopping

KB6.Use of disinfectants, fumigation of the lab

KB7.Different chemicals, lab wares, equipments and their use

KB8.Operation and maintenance of various components/equipments of the lab
KB9.First aid and its use

2. AGR/N8102 Prepare and store culture media

KB1. Fundamentals of plant propagation

KB2. Good laboratory practices

KB3. Various techniques in plant tissue culture & their applications

KB4. Different medium components- macronutrients, micronutrients, vitamins, amino acids, sugar, undefined organic supplements, solidifying agents, growth regulators etc

KB5. Functions of medium

KB6. Different types of media like whites, Murashige & Skoog, Gamborg, Nitsch etc

KB7. Preparation of stock solutions for nutrient medium

KB8. Method of preparation of medium

KB9. Sterilization & storage of medium

KB10. Plant growth conditions & micro-climate maintenance

KB11. Physical screening of contaminants

KB12. Personal hygiene & lab sanitation

KB13. Operation and maintenance of various lab equipment

KB14. Controlled conditions of growth room

KB15. Handling of hazardous chemicals

KB16. Basics of media preparation, sterilization, storage and use
KB17. Operation and maintenance of hardening unit/mist chamber

3. AGR/N8103 Prepare explants for tissue culture, carry out shoot multiplication and acclimatize plantlets

KB1. Fundamentals of plant propagation
KB2. Different plant propagation methods
KB3. Micropropagation techniques
KB4. Good laboratory practices
KB5. Various techniques in plant tissue culture & their applications
KB6. Methods of dissection, grading, placement
KB7. Application of tissue culture in agricultural science
KB8. Plant growth conditions & micro-climate maintenance
KB9. Personal hygiene & lab sanitation
KB10. Operation and maintenance of various lab equipment
KB11. Aseptic conditions necessary for tissue culture
KB12. Optimum conditions required for plant tissue culture
KB13. Methods of inoculation and incubation
KB14. Methods of prevention of contamination of cultures
KB15. Government schemes and support for tissue culture
KB16. Sterilization techniques
KB17. Nutritional requirements for optimal growth of a tissue *in vitro*
KB18. Various hardening techniques
KB19. Operation and maintenance of hardening of units

4. AGR/N8104 Calibrate equipment and maintain documents

KB1. Frequency for calibration of equipments
KB2. Procedure for calibration of each equipment
KB3. Types of chemicals used in the organization laboratory
KB4. Sanitizers and disinfectants and their handling and storing methods
KB5. Various laboratory techniques
KB6. Good laboratory practices
KB7. Methods used by the organization for documentation and record keeping

5. AGR/N9912: Collaborate with team members and work effectively

KB1. Types of information to be communicated to/exchanged with colleagues
KB2. Team problem solving techniques
KB3. Effective modes of communication within teams
B4. Importance of effective communication and relationship building
KB5. How to interact with seniors effectively
KB6. Best practices on working effectively with colleagues

Duration

Each training consists of 30 days foundation skill development training and 3-6 months industrial training for 2-3 potential candidates.

Number of trainees/training

Maximum 30 trainees

Number of trainings

Total numbers of trainings scheduled are 6 with 2 trainings per year for 3 years starting from 2020-21 to 2022-23.

Eligibility

Graduates/ Post Graduates in life science and allied subjects /un-employed youths

Mode of selection

Selection will be made by screening committee constituted by partner institute University of Horticultural Sciences, Bagalkot through open call of application through online mode.

Fellowship

Training includes foundation and industrial training for aspiring entrepreneurs. Foundation training will be for 30 days at Skill Vigyan Centre, College of Horticulture, Bagalkot. TA and DA will be paid to trainees during foundation training. Further 2-3 potential candidates per training will be selected and attached with commercial tissue culture units for 3-6 months industrial training with fellowship of Rs. 10000/month and Rs. 10000/trainees for DPR preparation.

Skill Vigyan Centre

State-of-the-art Center for Biotechnology Research (CBR) has been established at UHS, Bagalkot with the financial support of Karnataka Innovation and Technology Society (K-tech), Department of Electronics, Information Technology, Biotechnology and Science & Technology, Government of Karnataka (KBITS/126/BFC/5/2013-14). The existing facilities at CBR were modified and strengthened to act as Skill Vigyan Centre. SVC houses all the basic facilities viz., washing & storage room, media preparation & sterilization room,

transfer room, growth chamber, PCR machine, electrophoresis unit, gel doc, fume hood, bench spaces, hardening chamber, mother block of local banana cultivars and several other crops. The center supports entrepreneurs with technology, business planning, work space, access to specialized equipments and networking. Technology business incubation is an added phenomenon that the CBR works on to develop entrepreneurship in agri-biotechnology.

Faculty and Expertise

Programme Coordinator **Co-Programme Coordinator** **Co-Programme Coordinator**
Dr. Prabhuling G **Dr. Kulapati H** **Dr. Shripad Vishweshwar**
Professor (Biotech) Professor (Fruit Science) Asst. Professor (Economics)
CoH, Bagalkot CoH, Bagalkot Directorate of Extension,
UHSB

Co-Programme Coordinator **Co-Programme Coordinator**
Dr. Rekha Chittapur **Dr. Raghavendra Gunnaiah**
Assistant Professor (Plant Breeding) Assistant Professor (Molecular Biology)
CoH, Bagalkot CoH, Bagalkot

Contact person

For further information contact:

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