

**6th International Conference on Entrepreneurship, Innovation and Leadership
(ICEIL – 2024)
9th - 11th October 2024**

SESSION WRITEUP

TRACK-5: Biotechnology & Biosciences

Session No	5.1
Panel Discussion Session Topic	Empowering Atmanirbhar Bharat Through Bio-Entrepreneurship for Circular Bio-Economy
Day & Date	Wednesday, 9th October 2024
Time	12 noon – 1:30 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Center for Biotechnology and Biochemical Engineering, Amity Institute of Biotechnology

Session Overview:

Atmanirbhar Bharat, or Self-Reliant India, aims to boost India's economic growth, innovation, and sustainability. Bio-entrepreneurship, leveraging biotechnology and entrepreneurship, plays a vital role in achieving this vision. Circular bioeconomy focuses on renewable resources, waste reduction, and sustainable production, aligns perfectly with Atmanirbhar Bharat's objectives. Atmanirbhar Bharat emerges as an indispensable campaign for transforming India into a 'Viksit Bharat' by 2047. The self-reliant approach not only fosters economic resilience but also nurtures innovation, job creation, and sustainable development. By prioritizing indigenous production, technology advancement, and skill development, India can break free from dependency, laying the foundation for a robust and self-sufficient economy. It will further strengthen Government's initiatives such as 'Net Zero' carbon economy & 'Lifestyle for Environment' and will steer India on the path of accelerated 'Green Growth' by promoting 'Circular Bioeconomy.' Bio-entrepreneurship can drive India's self-reliance by developing indigenous biotech solutions for healthcare, agriculture, and energy; by creating jobs and stimulating economic growth in rural and urban areas; by fostering innovation, R&D; and intellectual property development and by enhancing India's global competitiveness in biotechnology. Key bio-entrepreneurship opportunities for achieving circular economy includes biodegradable materials for packaging, biofuels, waste-to-wealth technologies, sustainable agriculture, precision farming, biopharmaceuticals and healthcare solutions. Bio-

entrepreneurship, aligned with circular bioeconomy principles, is crucial for achieving Atmanirbhar Bharat's vision. By harnessing India's biotech potential, we can create a sustainable, self-reliant nation, driving growth, innovation, and environmental stewardship.

Session Objectives:

1. To promote sustainable resource utilization and waste management for maximizing resource recovery and minimizing environmental impacts. Closed-loop production, minimizing waste generation, developing circular bioeconomy business models around biomaterials research & biowaste valorization will be leading to a more resilient Nation.
2. Encouraging renewable energy and bioproducts to enhance energy security, climate change mitigation and adaptation, development of innovative bioproducts, job creation in renewable energy and bioproduct sectors.
3. Supporting local economies through bio-based industries for job creation, stimulating entrepreneurship, improving quality of life for regional communities, enhances regional self-sufficiency and resilience for transforming India into a stable economy.

Key Questions to be Explored:

1. What specific policies do you believe are crucial for supporting bio-entrepreneurship in India, and how can they be effectively implemented?
2. How can emerging technologies, such as biotechnology and artificial intelligence, be leveraged to enhance bio-entrepreneurship in the context of a circular bioeconomy?
3. What are the main challenges faced by bio-entrepreneurs in India today, and what solutions can be proposed to overcome these barriers?
4. How can we better engage local communities and farmers in bio-entrepreneurship initiatives to ensure their active participation and benefit?
5. What role does education play in promoting bio-entrepreneurship, and how can we better integrate this into the curriculum at various educational levels?
6. How can we raise awareness about the importance of a circular bioeconomy among consumers and businesses to promote sustainable practices?
7. How can we effectively measure the impact of bio-entrepreneurial initiatives on both the economy and the environment?
8. What strategies can bio-entrepreneurs adopt to scale their solutions effectively while maintaining sustainability and local relevance?
9. How can India learn from global best practices in bio-entrepreneurship and circular economies to enhance its initiatives?

Session No	5.2
Panel Discussion Session Topic	Revolutionizing Agriculture for sustainable solutions through Innovation and Entrepreneurship
Day & Date	Wednesday, 9th October 2024
Time	2:00 pm– 3:30 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Centre for Plant and Environmental Biotechnology, Amity Institute of Biotechnology

Session Overview:

The agricultural sector stands at a critical crossroads, where the increasing global population and climate challenges demand innovative and sustainable solutions. To address these challenges and achieve Sustainable Development Goal-2- Zero Hunger; innovation and entrepreneurship can become the vital drivers to secure food security and sustainable food systems.

Innovation in agriculture ranges from precision farming technologies to advancements in biotech, such as the use of beneficial microbes like plant growth promoting bacteria, and Arbuscular Mycorrhizal Fungi (AMF) to enhance soil fertility and crop yield naturally. Smart farming solutions using AI, drones, and IoT enable farmers to monitor crops in real-time, optimize water usage, and reduce the need for harmful chemicals. These technologies not only improve productivity but also minimize the environmental footprint of farming practices.

Entrepreneurship plays an essential role in scaling these innovations and making them accessible to farmers worldwide, particularly in low-resource settings. Agri-entrepreneurs are creating value-added products from agricultural waste, promoting circular economy models that turn waste into a resource. Startups are also pioneering alternative farming methods, such as vertical farming and aquaponics, to optimize land use and meet urban food demands.

Therefore the collaboration between governments, private sector stakeholders, and researchers is key to fostering this ecosystem of innovation. Investment in research and development, coupled with supportive policies for startups and smallholder farmers, can unlock untapped potential in agriculture. Programs encouraging youth and women to engage in agri-businesses ensure inclusivity and long-term sustainability.

Session Objectives:

1. To understand the role of innovation and technology in enhancing agricultural productivity and sustainability.
2. To explore how entrepreneurship can drive value-added solutions, market access, and food security improvements.
3. To highlight the successful agri-tech startups, business models, and innovations that contribute to environmental sustainability and economic growth.
4. To encourage the collaboration between stakeholders like governments, the private sector, researchers, and farmers to build resilient agricultural systems.

Key Questions to be Explored:

1. What are the most impactful technologies and practices nowadays preferred for in sustainable agriculture
2. What successful business models have emerged for entrepreneurs in the agricultural sector, and how can these models be replicated or adapted for different regions?
3. What policy reforms are needed to facilitate the growth of sustainable agri-entrepreneurship?
4. How can investment in agri-tech and sustainable farming be made more attractive to private investors and venture capitalists?
5. What long-term strategies are necessary to make agriculture both sustainable and resilient in the face of climate unpredictability?

Session No	5.3
Panel Discussion Session Topic	Synergizing Biotechnology Research and Innovation for a Self-Reliant India: Catalyzing the Viksit Bharat Vision
Day & Date	Wednesday, 9th October 2024
Time	3:45 pm– 5:15 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Center for Cellular and Molecular Biotechnology, Amity Institute of Biotechnology

Session Overview:

As India strives towards achieving the Viksit Bharat vision, the integration of biotechnology research and innovation emerges as a cornerstone for fostering a self-reliant nation. In the context of this ambitious agenda, it becomes imperative to synergize efforts across sectors to harness the full potential of biotechnology in addressing national challenges. This panel discussion will delve into the vital role of biotechnology in sectors such as agriculture, healthcare, and environmental sustainability, emphasizing the transformative impact it can have on economic growth and societal well-being.

Recent advancements in biotechnology have shown significant promise in revolutionizing critical sectors such as healthcare and agriculture. In healthcare, innovations like personalized medicine, affordable diagnostics, and vaccine development are paving the way for better access to healthcare solutions. In agriculture, biotechnology is driving the creation of genetically modified crops, improving yields and enhancing nutritional value. These developments present immense opportunities for entrepreneurs, who can capitalize on these advancements to create scalable solutions and contribute to India's self-reliance. However, the sector faces challenges, including funding shortages, infrastructure limitations, and regulatory complexities, which need to be addressed to fully realize its potential. By exploring these opportunities and challenges, the panel will provide valuable insights for fostering innovation and encouraging entrepreneurship in the biotechnology sector.

Session Objectives:

1. Highlight key biotechnology areas for economic growth and self-reliance.
2. Explore strategies to enhance partnerships between research, startups, and industry.
3. Develop strategies to position India as a global leader in biotechnology innovation.
4. Advocate for policies that support biotechnology innovation and align with the Viksit Bharat vision.

Key Questions to be Explored

1. How can collaboration between academia, startups, and industry be effectively strengthened to accelerate biotechnological innovations?
2. How can biotechnology drive India's self-reliance in critical sectors like healthcare and agriculture?

3. What policies are needed to ensure that biotech innovations translate into societal benefits or promotion of entrepreneurship developments?
4. What challenges do biotech startups in India face, and how can they be addressed?
5. How can we balance ethical concerns in biotech innovation with the need for rapid development?
6. How can India leverage its strengths in biotechnology to compete on a global scale?

Session No	5.4
Panel Discussion Session Topic	Applications of AI in Healthcare for Empowered Citizen and Economic Growth
Day & Date	Thursday, 10th October 2024
Time	10:00 am – 11:30 am
Venue	J-2 Block Admission Hall
Organizing Institute	Center for Computational Biology and Bioinformatics, Amity Institute of Biotechnology

Session Overview:

This session will delve into how Artificial Intelligence (AI) is reshaping healthcare, empowering individuals, and fueling economic growth. AI holds immense potential to revolutionize healthcare by offering innovative solutions to complex problems. By integrating AI across various areas such as diagnostics, treatment, and drug discovery, we can create a more efficient, personalized, and accessible healthcare ecosystem. AI empowers individuals by offering more convenient and effective healthcare options. For instance, AI-powered virtual health assistants can provide round-the-clock support, answer common health inquiries, and even deliver preliminary diagnoses. This is particularly valuable for people in remote or underserved areas. Additionally, AI-enabled medical devices allow patients to monitor their health at home, reducing the need for frequent in-person doctor visits.

AI is driving advancements across healthcare, from diagnostics and mental health to drug discovery and personalized medicine. In healthcare, AI is making a significant impact by enhancing diagnostic accuracy, speeding up drug discovery, and enabling personalized medicine. AI algorithms can analyze medical images—like X-rays and MRIs—with a precision that often surpasses human experts, enabling earlier and more accurate diagnoses. This can improve patient outcomes and reduce unnecessary medical procedures.

AI-driven chatbots and virtual therapists are providing essential support, particularly in regions with limited access to health professionals. These AI tools create safe, accessible environments where individuals can discuss their concerns and receive guidance. Additionally, AI accelerates the drug discovery process by analyzing vast datasets to identify new drug targets and predict interactions, leading to the development of more effective treatments for a wide range of diseases.

Session Objectives:

1. To explore how AI technologies enhance diagnostic accuracy and improve patient outcomes across different healthcare sectors.
2. To understand AI's role in reducing healthcare costs and driving economic growth through innovation.
3. To discuss AI's applications in addressing healthcare inequalities and empowering citizens through accessible and affordable care.
4. To identify collaboration opportunities for AI startups, government agencies, and healthcare institutions to accelerate AI adoption in healthcare.

Key Questions to be Explored:

1. Can AI-driven imaging tools replace traditional diagnostic methods, what are their success rate and what challenges are there in integrating them with existing healthcare systems?
2. How is AI accelerating drug discovery, and what advancements have been made in using AI to discover treatments for diseases such as cancer or COVID-19?
3. Can AI improve treatment adherence and outcomes by tailoring healthcare to individual genetic, behavioral, or environmental factors?
4. How can AI be used to optimize hospital operations, such as managing patient flow, supply chains, and resource allocation, leading to cost reduction and better patient outcomes?
5. What are the opportunities and challenges for AI-powered healthcare management platforms in both private and public healthcare sectors?
6. How is AI enhancing third-party assessment (TPA) platforms, and how does it improve claims processing efficiency?
7. Can AI-powered virtual assistants assist in claims processing and customer service?

Session No	5.5
Panel Discussion Session Topic	Bio-E3: Pioneering Eco-Friendly, and Equitable Solutions in Healthcare Research.
Day & Date	Thursday, 10th October 2024
Time	12:00 noon – 1:30 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Center for Medical Biotechnology, Amity Institute of Biotechnology

Session Overview:

Biotechnology for Economy, Environment and Employment (Bio-E3) is revolutionizing healthcare and research by integrating eco-friendly and equitable principles to create a sustainable and inclusive industry. By fostering sustainable innovations and promoting inclusive access to quality healthcare, Bio-E3 aims to transform the way healthcare is delivered, prioritizing environmental stewardship, social responsibility, and equitable access. Envisioning a world where healthcare and research harmoniously coexist with the environment, Bio-E3

strives to reduce healthcare's ecological footprint, bridge health disparities, and drive sustainable economic growth. Through sustainable practices, eco-friendly technologies, and education, Bio-E3 empowers healthcare professionals and communities, ensuring a healthier planet and equitable access to quality healthcare for all.

The Indian government has announced the BioE3 policy, a groundbreaking initiative aimed at harnessing biotechnology to drive economic growth, environmental sustainability, and job creation. Led by our Hon'ble Prime Minister Sh. Narendra Modi, this policy prioritizes innovation-driven support for R&D and entrepreneurship, accelerating technology development and commercialization through Biomanufacturing & Bio-AI hubs and Biofoundry. The focus is on six strategic sectors: bio-based chemicals and enzymes, functional foods and smart proteins, precision biotherapeutics, climate-resilient agriculture, carbon capture and utilization, and futuristic marine and space research. By promoting a circular bioeconomy, the BioE3 policy will strengthen India's commitment to a 'Net Zero' carbon economy and 'Lifestyle for Environment' initiatives, steering the country toward accelerated green growth. This visionary policy will foster a sustainable, innovative, and responsive future, addressing pressing global challenges and laying the foundation for Viksit Bharat.

Session Objectives

1. Develop and implement eco-friendly technologies and practices in healthcare and research.
2. Promote equitable access to quality healthcare, focusing on underserved communities.
3. Foster interdisciplinary collaboration and knowledge sharing among stakeholders.
4. Support innovative research and development in sustainable healthcare solutions.
5. BioE3 Policy: Issues in Implementation and Recommendations.

Key Questions to be Explored

1. How can we design and implement green healthcare infrastructure to reduce energy consumption and waste?
2. What biodegradable medical devices and materials can be developed and promoted to minimize environmental impact?
3. How can sustainable supply chain management practices be ensured to reduce healthcare's ecological footprint?
4. What strategies can be developed to create climate-resilient healthcare systems, adapting to climate-related health impacts?
5. How can equitable access initiatives address health disparities and promote inclusive healthcare?
6. What research and innovation opportunities exist to develop sustainable healthcare solutions and eco-friendly technologies?
7. How can healthcare systems transition to a net-zero carbon economy and promote a lifestyle for environment?

Session No	5.6
Panel Discussion Session Topic	Innovative Cancer Theranostics and Management Towards Wellness for All
Day & Date	Thursday, 10th October 2024
Time	2:00 pm – 3:30 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Amity Institute of Molecular Medicine and Stem Cell Research

Session Overview:

Cancer kills almost ten million people annually in the world. In the case of cancer, our body's abnormal cells divide in an uncontrolled manner, invade nearby tissues, and spread to other parts of the body through the blood and lymph systems. During the last decade, with the advancement in the field of biomedical science research, medicine, and cutting-edge technologies, many hoped that the disease would be closer to defeat. People diagnosed with cancer today often still contend with the dismal side effects and highly uncertain outcomes associated with the decades-old therapeutic gauntlet of radiation, surgery, and chemotherapy. New cancer treatments are needed to turn the tide decisively — and they are rapidly arriving.

The Cancer Theranostics, the arsenal of weapons used to treat human malignancies is rapidly expanding. This session will discuss the “**Innovative Cancer Theranostics**” a new concept that utilizes the combination of diagnostics and therapeutics as well as integrates instantaneous evaluation of drug delivery for precision medicine. Theranostics is crucial for the evolution of precision medicine, treatment pathways, and tailoring therapy to an individual's specific disease molecular characteristics while minimizing the side effects. This innovative approach uses molecular targets to guide the diagnosis, treatment, management, and wellness of cancer patients in the clinics. Artificial Intelligence is playing an important role in the advancement of Cancer Theranostics.

Session Objectives:

1. To discuss the new revolutionary strategies for the early and non-invasive diagnosis of human cancers
2. To emphasize the need for precision medicine and its impact on cancer treatment outcomes and the quality of life of cancer patients
3. To provide an overview of immune therapies in the treatment of blood cancers

Key Questions to be Explored:

1. What should be the potential implications of cutting-edge technologies in early diagnosis and management of human cancers
2. What are the major challenges for the pharmaceutical and Biomedical industries in developing precision medicine for the treatment of human cancers
3. What should be the roles of oncologists, radiologists, and hospital management for the early prevention of human cancers
4. How awareness can be spread in society against cancer to eliminate the fear/stigma.
5. How India can be positioned in the top global ranking in cancer research.

Session No	5.7
Panel Discussion Session Topic	Innovation in Microbial Entrepreneurship towards Socio-Economic Development
Day & Date	Thursday, 10th October 2024
Time	3:45 pm – 5:15 pm
Venue	J-2 Block Admission Hall
Organizing Institute	Amity Institute of Microbial Technology

Session Overview:

Microbial entrepreneurship harnesses the unique capabilities of microorganisms to foster innovation across various sectors, significantly contributing to socio-economic development. Key areas of focus include biotechnology in agriculture, where biofertilizers and biopesticides enhance crop yields sustainably, and healthcare, which benefits from the production of antibiotics and probiotics through microbial fermentation.

The food industry also sees advancements via fermentation technologies that improve food preservation and nutritional value. Additionally, microbial solutions for waste management and pollution control promote environmental sustainability, while innovations in industrial biotechnology lead to the production of biodegradable materials and biofuels.

The socio-economic impacts of these innovations are profound. They create jobs and foster skill development, particularly in start-ups and small to medium enterprises. Economic growth is stimulated through increased agricultural productivity and new markets for bioproducts, while public health improves with better access to affordable medications and nutrition.

Despite challenges such as the need for ongoing research, regulatory clarity, and public awareness, the potential of microbial entrepreneurship is immense. Collaborative efforts among governments, academia, and industry are essential to fully realize the benefits of this field. By leveraging microbial technologies, we can develop sustainable solutions that address global challenges, ultimately enhancing community resilience and well-being.

Session Objectives:

- Promote Sustainable Agriculture**
Develop microbial solutions such as biofertilizers and biopesticides to enhance crop productivity while minimizing environmental impact.
- Enhance Public Health**
Foster the creation of microbial-based pharmaceuticals, probiotics, and vaccines to improve health outcomes and reduce disease burden.
- Support Waste Management and Environmental Restoration**
Innovate microbial technologies for effective waste treatment, bioremediation, and pollution control to promote environmental sustainability.
- Drive Economic Growth**
Create new markets and revenue streams through the commercialization of microbial products, contributing to local and national economies.

5. Foster Job Creation and Skills Development

Encourage the establishment of start-ups and SMEs in the microbial sector, providing job opportunities and vocational training in biotechnology.

6. Advance Research and Development

Invest in R&D to explore new microbial applications, ensuring continuous innovation and improvement in existing technologies.

Key Questions to be Explored:

1. What are the most promising microbial technologies that can be commercialized for sustainable agriculture, and how can they be effectively scaled?
2. How can microbial entrepreneurship be integrated into existing healthcare systems to improve public health outcomes, particularly in underserved communities?
3. What regulatory frameworks are needed to ensure the safe development and use of microbial products while fostering innovation?
4. How can partnerships between academia, industry, and government be strengthened to facilitate knowledge transfer and resource sharing in microbial entrepreneurship?
5. What strategies can be employed to raise public awareness and acceptance of microbial innovations in food, health, and environmental applications?
6. How can microbial technologies contribute to achieving food security and resilience in the face of climate change and population growth?