



## Institute of Biotechnology BDU-IoB



### What is Biotechnology!

Biotechnology is among the newly emerging innovative fields that exploit biological processes, organisms, cells or cellular components to develop new technologies impacting almost all sectors of the global society. It is believed that this modern technology will help to address global challenges faced by the planet and its inhabitants by contributing towards feeding the booming population, improving the health system, increasing the efficiency of industrial processes and addressing environmental concerns by building a carbon-free society. Ethiopia, being one of the mega biodiversity hotspots and part of the global society characterized by poor economic development, biotechnology offers opportunities to make use of our biological resources in building strong bio-based economy that can create employment opportunities.

### About Us!

Bahir Dar University has established the Biotechnology Research Institute (BRI) in 2012 G.C to conduct original biotechnological research and technology transfer activities that are believed to have a significant contribution to the improvement of the living standard of the society. Moreover, the Ethiopian Ministry of Education (MoE) has selected BDU to be among research-intensive universities of the country in 2021. In order to further advance the contribution of the university to the national biotechnology R&D activities the Biotechnology Research Institute (BRI) have been established as Institute of Biotechnology (IoB) to host post-graduate study programs and trainings in the different areas of Biotechnology.

### Vision

- To see IoB being a leading biotechnology research institute in Africa in 2030, wherein cutting edge and problem-solving research outputs and high caliber scientists are produced.



### Mission

- Create platforms that promote biotechnology R&D activities that contributes for the development of sustainable bio-based national economy
- Carryout demand driven, thematic biotech research activities.
- Engage postgraduate students in cutting-edge research activities
- Foster innovation, technology transfer and community engagement activities that contribute to sustainable development of the national economy
- Establish collaborations and partnerships with local, regional and international institutions in the biotech R&D activities

### Core Values

- Excellence
- Quality
- Team Work
- Diversity
- Autonomy
- Responsibility
- Innovation

### Departments

- Agricultural Biotechnology
- Health Biotechnology
- Industrial Biotechnology
- Environmental Biotechnology
- Bioinformatics and Data base management

### Training Programs

- PhD in Biotechnology (Agricultural Biotech., Health Biotech., Industrial Biotech., Environmental Biotech., Bioinformatics and Data base management)
- MSc. in Agricultural Biotechnology
- MSc. in Medical Biotechnology
- MSc. in Environmental Biotechnology
- MSc. in Industrial Biotechnology
- MSc. in Bioinformatics

### Facilities

1. Molecular Biology Laboratory
2. Microbiology laboratory
3. Instrumental laboratory
4. Bioinformatics laboratory



*Innovate, Adopt and Transform*

# Research Themes

## 1. Agricultural Biotechnology

- Plant Biotechnology (Marker Assisted Breeding, genome editing, plant tissue culture, molecular biology, omics)
- Animal Biotechnology (reproductive biotechnology, animal genomics and genetics, disease resistance, nutritional biotechnology, and the development of animal bioreactors)
- Fish Biotechnology (genetic improvement, disease control, environmental management, and biodiversity conservation)

## 2. Health Biotechnology

- Cancer and Non-communicable Diseases biotechnology
- Molecular diagnostics and Biomarkers
- Genomics and precision medicine
- Drug and Vaccine Design and Development
- Nutrigenomics and Microbiome Research
- Medicinal Plant Biotechnology
- Forensic Biotechnology
- Alternative and complementary medicine
- Host-pathogen interaction
- Aging research

## 3. Industrial Biotechnology

- Bio-fortification and Probiotics
- Enzyme technology
- Metabolic engineering
- Fermentation technology
- Biofilm production,
- Food additives and preservatives

- Biosensors and biomarkers
- Microbial engineering & therapeutics
- Biologics and phytochemicals
- Bio-processing and Biomaterials
- Nano-biotechnology
- Bioenergy

## 4. Environmental Biotechnology

- Bioremediation and bio-recycling
- Waste and waste water treatment
- Plastic bio-degradation
- Value addition
- Agro-industrial wastes and residues
- Nitrification and de-nitrification using activated sludge process

## 5. Bioinformatics

- Data mining
- Algorithmic bioinformatics
- Evolutionary genomics
- Structural bioinformatics

## 6. Emerging issues

- Climate Change
- COVID
- Mango white scale
- Water Hyacinth





## Partners


- Bio and Emerging Technologies Institute (BETin)
- Ethiopian Agricultural Research Institutes (EIAR)
- Amhara Region Agricultural Research Institute (ARARI)
- Amhara Region Public Health Institute (APHI)
- National Universities
- Industries
- Federal and Regional Offices
- International Center for Genetic Engineering and Biotechnology (ICGEB)
- University of Bonn
- Chinese Academy of Sciences

## Contact Us

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