

**Panskura Banamali College**

**(Autonomous)**

Panskura R.S., Purba Medinipur

West Bengal -721152

**Value-added Course**

On

**Laboratory-Based Eco-friendly Bio-plastic Production and its implementation**

**(BITHVAC 003)**

**(w.e.f. 2022-23)**



Offered by: Department of Biotechnology

## COURSE INFORMATION IN BRIEF

**Course Name:** Laboratory-Based Bio-fertilizer Production

**Course type:** Value-added Course

**Medium:** English

**Mode:** Blended (For Theory – online; For Practical – Offline)

**Intake Capacity:** Minimum 20; Maximum 40

**Eligibility:** Biotechnology Students from across College

**Duration:** 30 Hrs. (To complete within a time span of two months)

**Course Fees:** Rs.300.00 (Rupees Three hundred only)

**Coordinator:** Dr. Dipanwita Mukherjee

**Contact:** [biotechpbcr@rediffmail.com](mailto:biotechpbcr@rediffmail.com); [dipa.iuc@gmail.com](mailto:dipa.iuc@gmail.com)

### **Course Learning Objectives:**

1. Production of Bio-plastic
2. Checking of degradability and strength of Bio-plastic

### **Course Learning Outcomes:**

1. Learning about the advantages of using sustainable bio-plastic and global production of bio-plastics in different sectors.
2. Learning about the demerits of using fossil fuel and petroleum-based plastics.
3. Develop knowledge about environmental sustainability, and renewable and non-renewable resources for plastic production.
4. Develop knowledge about environmental pollution and how to improve carbon footprint.
5. Learning about various tests during innovative bio-plastic production.
6. Learning of quality control techniques, mostly demanded by industries
7. Ensuring Practical field experience to check product effect.
8. Consumer engagement: Products and packages made from bio-plastics send a direct message to the consumers.

### **Title of the Course:**

**Laboratory-Based Eco-friendly Bio-plastic Production and its implementation**

### **Syllabus**

**Period- 30hrs.**

1. Selection of starch for Bio-plastic production
2. Collection of ingredients regarding biodegradable plastic production.
3. Production of Bio-plastic from corn starch and tapioca starch.
4. Checking for solubility
5. Checking for degradability activity
6. Test for strength
7. Test for heat resistivity
8. Quality control after production
9. Implementation of the eco-friendly bio-plastic.

## References:

1. Sagnelli, D., Hebelstrup, K. H., Leroy, E., Rolland-Sabaté, A., Guilois, S., Kirkensgaard, J. J., ... & Blennow, A. (2016). Plant-crafted starches for bioplastics production. *Carbohydrate polymers*, *152*, 398-408.
2. Abe, M. M., Martins, J. R., Sanvezzo, P. B., Macedo, J. V., Branciforti, M. C., Halley, P., ... & Brienza, M. (2021). Advantages and disadvantages of bioplastics production from starch and lignocellulosic components. *Polymers*, *13*(15), 2484.