

Information Brochure

Value-Added Course

Biofertilizer



Jagannath Kishore College Purulia

2018-2019

Introduction:

- o Biofertilizers are defined as preparations containing living cells or latent cells of efficient strains of microorganisms that help crop plants' uptake of nutrients by their interactions in the rhizosphere when applied through seed or soil. They accelerate certain microbial processes in the soil which augment the extent of availability of nutrients in a form easily assimilated by plants.
- o Very often microorganisms are not as efficient in natural surroundings as one would expect them to be and therefore artificially multiplied cultures of efficient selected microorganisms play a vital role in accelerating the microbial processes in soil.
- o Use of biofertilizers is one of the important components of integrated nutrient management, as they are cost effective and renewable sources of plant nutrients to supplement the chemical fertilizers for sustainable agriculture. Several microorganisms and their association with crop plants are being exploited in the production of biofertilizers. They can be grouped in different ways based on their nature and function.

Objective of the Course:

The project aims at establishing an integrated organic bio-fertilizer (OBF) technology combining the use of adapted biofertilizer propagation and application practices together with organic amendments and intercropping to promote sustainable agriculture crop production.

- o Creation of skilled human resources and providing employment, mainly in rural areas
- o Shifting from handy chemical fertilizer to biofertilizer
- o Overall improvement of the environment
- o Dissemination of knowledge for biofertilizer production techniques and production in home and selling
- o It offers several business opportunities to those who are trained in horticulture.

Operating Departments:

Department of Botany

Approved Student Strength: 15

Syllabus:

1: General account about the microbes used as biofertilizer: Rhizobium, Actinorrhizal symbiosis, Azospirillum. Azotobacter: classification, characteristics – crop response to Azotobacter inoculum, maintenance and mass multiplication.

2: Cyanobacteria (blue green algae): Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.

3: Mycorrhizal association: types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

Practical

1. Important bacteria- Azotobacter, Azospirillum, Phosphate solubilizing bacteria: isolation, identification, mass multiplication, carrier based inoculants and packaging

2. Organic farming: green manuring and organic fertilizers, recycling of biodegradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting – field Application.

Course Credit: Total credit 2. This is equivalent to a UGC CBCS SEC course of weekly contact hours 2.

Activities of the Students: Students will learn to prepare biofertilizers on their own with suitable techniques. Students have to pass an examination of 30 marks for course completion certificate.

Time Required: 6 Months

Date of Commencement of Course: 01/08/2018

Pre-requisite: 10+2 level Biology.

Course Fee: This add-on course will run as pilot project. Hence, the college authority has decided to run the course free of cost for the session 2018-2019.

**Principal
Jagannath Kishore College,
Purulia**