



# ENTREPRENEURIAL TRAINING

On

**Spirulina Production, Processing  
& Value addition  
(5 days)**



Organized by  
Department of Agricultural Microbiology  
Directorate of Natural Resource Management  
Tamil Nadu Agricultural University  
Coimbatore - 641 003

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## About Tamil Nadu Agricultural University

The Tamil Nadu Agricultural University (TNAU) had its genesis from establishment of an Agricultural School at Saidapet, Madras, Tamil Nadu, as early as 1868 and it was later relocated at Coimbatore. In 1920 it was affiliated to Madras University. In 1971, it has attained the status of University. TNAU assumed whole responsibilities of Agricultural Education and Research and supported the farmers and State Agricultural Department by delivering research products. With more than 925 scientists and instructional professionals, the university has 39 agricultural research stations dispersed over seven agroclimatic zones of Tamil Nadu. 35 associated institutions and 18 constituent colleges are all involved in delivering agricultural education in the state. Students all over India and overseas apply for admission to PG and Ph.D programmes.

## About the Department

The Department was started as one of the units of the Department of Biology in 1971 in TNAU, Coimbatore and attained the status of a separate department in 1979. Post graduate programs leading to M.Sc. (Ag) and Ph.D. in Agricultural Microbiology were started in 1979. The department is involved in research, teaching, and extension activities. The department has algal culture collection unit with around 35 species which are of immense use as feedstock for nitrogen fixation, carbon sequestration, bio-stimulants, phosphorus nutrition, single cell protein, nutraceuticals, immune boosters and biofuels production. Besides, the department has released many novel strains of biofertilizers for various crops and pioneer in identifying potent

novel strains for nitrogen fixation, moisture stress management, phosphate, potassium and zinc solubilisation. The current research focus of the department is on biological nitrogen fixation (BNF), plant microbiomes, bioprocessing, climate change impact on microbial diversity, metabolomics in host-microbe interaction, post-harvest management and value addition, microbial pigments production, nutraceuticals and immune booster's development and biofuels production.

### **Importance of Spirulina**

Spirulina is a filamentous blue green alga. It grows well in natural water bodies of alkaline condition. It is rich in protein (60 to 70 %) and thus has long history of being use as a human food. The discovery of spirulina in the 1960s by Leonard and Compere led to the beginning of mass production of spirulina for commercial purpose. The spirulina is also used as a feedstock for production of bioactive compounds such as pigments and nutraceuticals. In commercial aquacultures (fish, prawn), and livestock unit, spirulina either in the wet or dried form is used as a complementary dietary ingredient.

Under optimal environmental conditions with adequate nutrients, it grows rapidly with high nutrient content, low nucleic acid, high concentrations of vitamins and minerals. In developing countries, it is used as a potential source of food, feed, and fuel. For human nutrition, it is cultivated in large scale in clean waters and under controlled conditions, while it is also grown in wastewaters and used in animal feed.

## **Aim of the training programme**

Despite numerous benefits of spirulina and its pigments, the technology is still in infant stage. Popularization among various stake holders is need of the hour to fully utilize the potential of spirulina and its products as immune boosters. Mass production in outdoor condition, extraction of pigments or nutraceuticals with good quality and development of value added products require adequate technical skills. Therefore, this training aims to impart important practical knowledge and skills to the participants for their capacity building for spirulina biomass cultivation and production of various value added products.

## **Objective**

To provide hands-on training for Spirulina mass production and post harvest processing techniques.

## **Contents/topics**

- Overview of morphology, taxonomy and various applications of spirulina and its commercial value
- Media preparation, microscopic observation of spirulina
- Mother culture production and maintenance
- Overview and demonstration of methods for growth measurement and harvesting of biomass from laboratory and outdoor cultivation units
- Mass cultivation techniques and processes in outdoor tanks
- Demonstration and training for harvesting and drying of biomass



- Estimation of quality of biomass on the basis of protein, carbohydrates & pigment contents
- Extraction of high value added products and its purity evaluation
- Demonstration of development of products using spirulina and phycocyanin
- Maintenance of mother or starter culture

## Methodology

There will be lectures and hands on practical sessions in each topic from specialized and experienced professional faculty of the university. There will be practical discussions among participants and visits to production unit. The course is designed to provide a holistic view for the development of the spirulina cultivation as a new start-up.

## Target beneficiaries

Students, entrepreneurs, farmers, self help groups and aquafarmers, officials of Government Departments, NGOs and other stakeholders. The government employees/students should send a scanned copy of their applications duly forwarded by the Head of the Institution (not required for private candidates) to [microbiology@tnau.ac.in](mailto:microbiology@tnau.ac.in).

## Medium of instruction

English and Tamil

## Contact details

Interested candidates can contact **Professor & Head, Department of Agricultural Microbiology** by email ([microbiology@tnau.ac.in](mailto:microbiology@tnau.ac.in)) or phone (0422 - 6611294) and can also contact **Dr. T. Kalaiselvi** Professor, (Agrl. Microbiology) by email

(tkalaiselvi@tnau.ac.in) or phone (9443378112) during office hours (9.0 am to 5.0 pm) on working days (Monday to Friday) and **Dr. R. Poorniammal**, Assistant Professor (Agrl. Microbiology) through **email: r.poornii@tnau.ac.in or Mobile No.:9790621114.**

### Duration

The training programme will be organized for 5 days.

### Venue

Department of Agricultural Microbiology,  
Tamil Nadu Agricultural University,  
Coimbatore - 641 003.

### Course Fee

**Course Fee Rs.10,000/-+18 % GST** per participant. Fee to be paid at the time of registration or can through NEFT. Certificate will be provided after 100% completion of the training program.

### Details for NEFT

#### State Bank of India

A/C.No. : 41730714022

IFS Code : SBIN0002274

Mail ID : [microbiology@tnau.ac.in](mailto:microbiology@tnau.ac.in)

Office Contact No : 0422 – 6611294

#### Other Charges:

Travel/boarding and lodging (TA, DA)  
on your own

#### How to apply:

Over phone confirmation

(Whatsapp no. - 9443378112)

& On-spot registration