



NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

DIVYADHARSHINI M

for successfully completing the course

Organic Chemistry in Biology and Drug Development

with a consolidated score of **55** %

Online Assignments	15.44/25	Proctored Exam	39.75/75
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Total number of candidates certified in this course: **98**

Prof. G P Raja Sekhar
Dean, Continuing Education
IIT Kharagpur

Jul-Oct 2021
(12 week course)

Prof. Debjani Chakraborty
Coordinator, NPTEL
IIT Kharagpur



Indian Institute of Technology Kharagpur



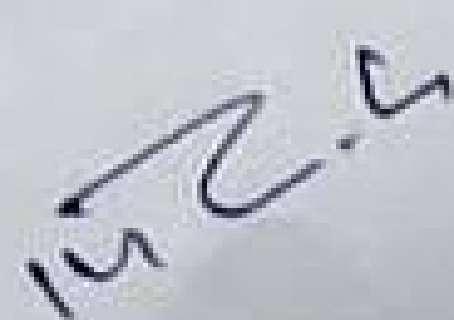
08.10.2021

CERTIFICATE

This is to certify that **Ms. M.DIVYA DHARSHINI (39030008)** Bachelor of Science in Chemistry Final year student of **SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY, CHENNAI** has undergone In Plant Training in our organization for a period from 15.09.2021 to 08.10.2021 in our Hosur Plant.

We wish her all the best in her future endeavors.

for **V B MEDICARE PRIVATE LIMITED,**


Authorized Signatory

V.B. MEDICARE PRIVATE LIMITED
100% EOU

Plot No. 59, 61, 62, 63, 66A & 67, SIPCOT Indl. Area, Phase II, Krishnagiri Road, Hosur - 635 109.
Tel : +91-4344 260691, 260692, Fax : +91-4344-260998, www.vbmedicare.com
Regd. Office : Bhavanam Koteswary House, No. 10-283/2, Opp : HIG 91, Near Lahary Apartment
Bharat Nagar Colony, Rangareddi, Hyderabad - 500 018
CIN NO. : U24239TG2004PTC042696



INTERNSHIP REPORT



Submitted by...

M.Divya Dharshini (39030008)

IN PARTIAL FULFILLMENT OF THE AWARD OF
THE DEGREE OF.....

BACHELOR OF SCIENCE

IN

CHEMISTRY

Sathyabama institute of
Science and technology,
Sathyabama University,
Chennai,
(600119)

Awarding year -(2019 to 2022)



ABOUT COMPANY

BioPlus is a family majority owned business with over 500 employees, multiple manufacturing sites and business in over 50+ countries. VB Medicare Pvt Ltd is 100% subsidiary of Bioplus Life Science. BioPlus life Sciences private limited operates as a pharmaceutical company.

Products are focused on naturally sourced, renewable resource compounds validated by advanced science. Focus is on licensed and OTC pharmaceuticals or healthcare products, novel drug delivery, excellence in carbohydrate chemistry and biopharmaceuticals.

The company offers various products, few of them are Bio-Algal DHA, Glucosamine, Sucralose, Liquorice, Diosmetite, DL- lysine acetylsalicylate and others, as well as provides healthcare products.

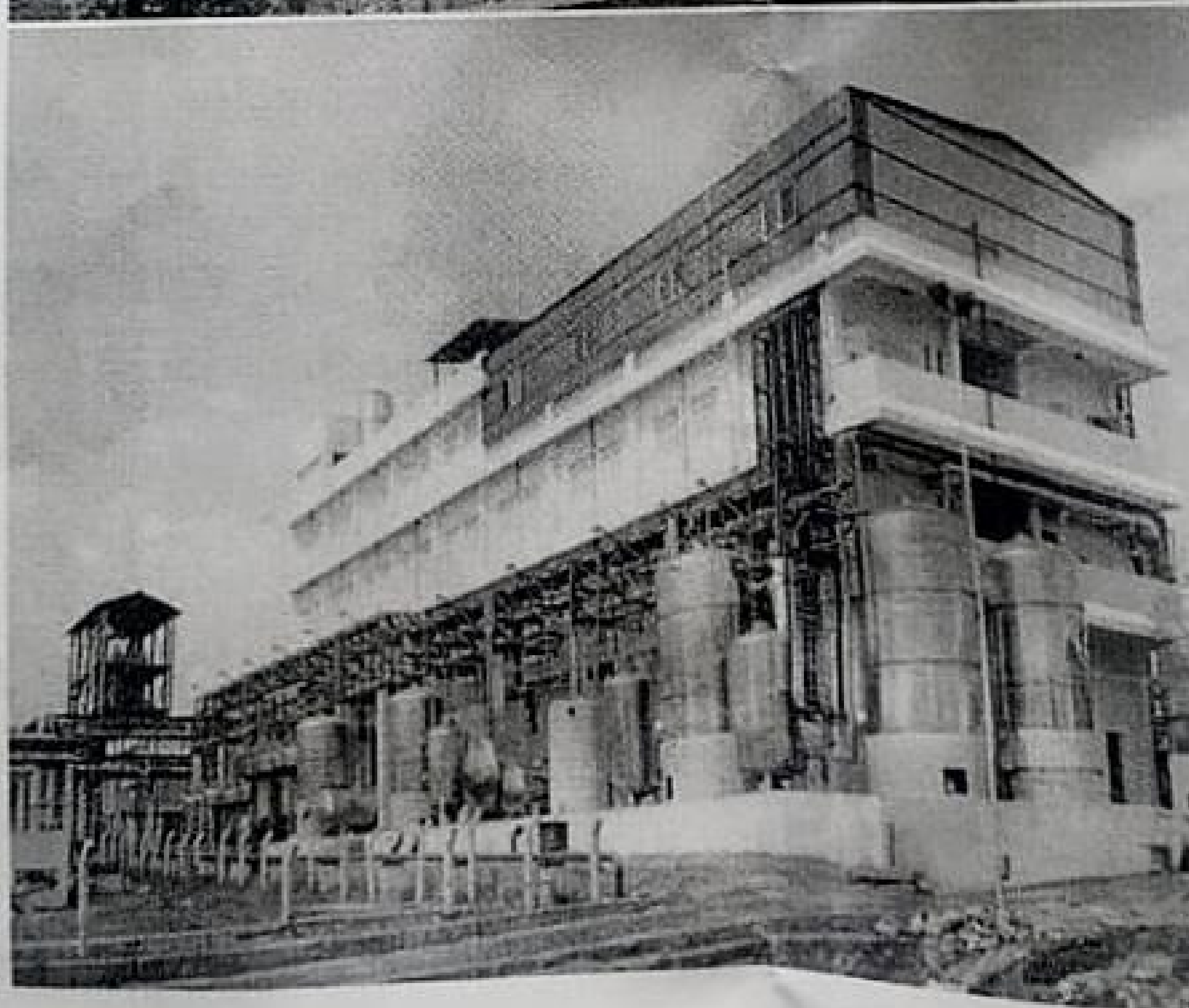
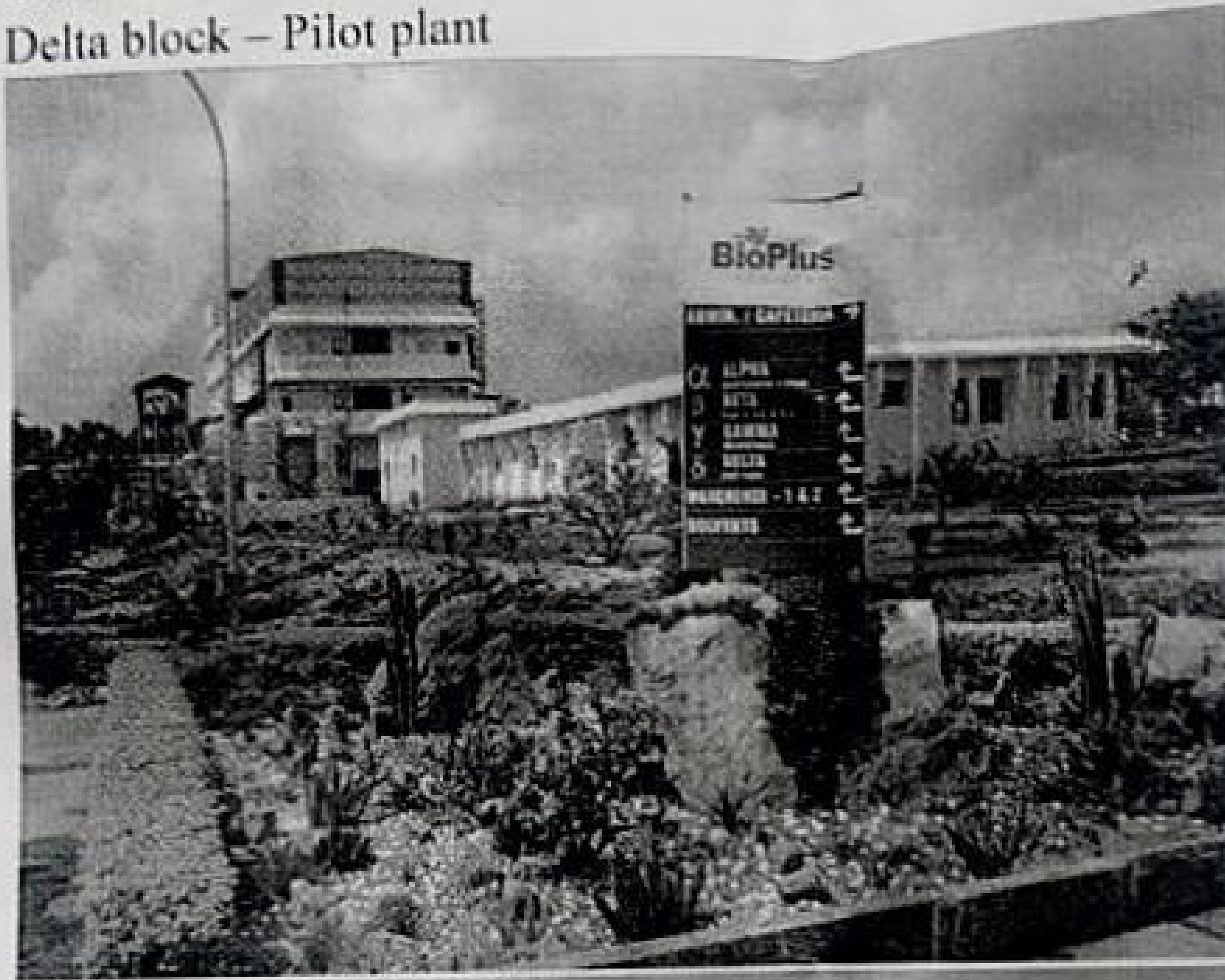
High quality, technology driven product development is carried out to produce a stable, clinically safe and effective formulation.

BioPlus life science serves customers worldwide. Have route extended to the following business units delivering high quality product:

1. Contract manufacturing
2. Pharmaceutical ingredients and formulations
3. Nutritional ingredients and formulations
4. Nanotechnology
5. Personal care

IN COMPANY

- Administrative block
- Alpha block – Manufactures and utility
- Beta block – R&D, QC, QA
- Gamma block – Manufacturing
- Delta block – Pilot plant



SYNTHETIC R&D

- Studied the working, principle of Rota-evaporator for reaction & distillation.
- Studied the process of various synthetic reaction processes like Esterification, reduction, hydrolysis, etc.
- Have observed various R&D techniques like setting of RB flask to conduct reactions, distillation, filtration, centrifugation, milling, sieving etc.
- Also got to understand about purifications of products
 - by extraction using solvents
 - water, alkalie, acidic wash to organic solvents
 - by usage of TLC (thin layer chromatography)
 - column chromatography
 - charcoal treatment
 - crystallization

BIOTECHNOLOGY R&D

- Studied culture of microbe used for the preparation of products by fermentation.
- Studied different phases of microbial growth.
- Lag phase
- Log phase
- Stationary phase
- Studied the concept of clean area and its type.

PRODUCTION

Observed for the operation / principle of the following equipments.

- Mass mixer
- RCVD (Rotary cone vacuum dryer)
- Cad mill
- Centrifuge
- FBD (Fluidized bed dryer)

Observed & studied the types of reactor.

- Stainless steel reactor
- Graphite reactor
- Glass-lined reactor
- Fermenter

PROCESS DESCRIPTION

Observation in fermentation process -

- Culture of biomass from mother cell.
- Fermentation of biomass at appropriate conditions by addition of dextrose, ammonia & others as its food supply.
- Maintaining appropriate
- pH - 5.5 to 6
- Temperature -28 degree Celsius
- Dissolved Oxygen
- Air supply
- Growth, multiplication and enlargement of microbial cell take place.
- Harvest of these microbes into a reactor.
- Cell disruption by use of enzyme / solvent.
- Settling and layer separation by filtration.
- Winterization by addition of solvent like pet ether at 0-5 degree Celsius. Here separation of layer take place where certain solid matter is being seperated to enrich your required product.
- Distillation of solvent and isolation of the required oil.
- Purification of the required Oil by refining and bleached by treatment with fuller's earth and silica gel.
- Deodorization under steam purge at vacuum of 175degree Celsius
- Finally packing and storage of the products.

QUALITY CONTROL DEPARTMENT

Determination of the following.

- LOD (Loss on drying)
- Sonicator.
- TDS (Total dissolved solids) in ETP water.
- Acid value of crude and finished product.
- pH
- Bulk and tapped density.
- Titration.
- Principle and working of HPLC, GC and UV spectrophotometer.