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for a sustainable future

OCCASION

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TECHNICAL INFORMATION

TECHNOLOGY TRANSFERENCE TO OBTAIN BENCIL PENICILLINA.

Assistent : Dr. Ermanno Piacenza

Presence period : from 09.03.1992 to 20.03.1992

I - STRATEGY

- 1.- TRANSFERENCE OF METHODOLOGY AND PROCESS OF BENCIL PENICILLINA ESCALE.
- 2.- TRAINING IN BENCIL PENICILLINA EXTRACTION AND PURIFICATION PROCESS.

II - DELIVERED DOCUMENTATION AND MEANS

- 1.- THE METHODOLOGY FOR FERMENTATION UP TO A 1,5 m3 LEVEL HAS BEEN DELIVERED.
- 2.- THE TECHNICAL DOCUMENTATIONS FOR BENCIL PENICILLINA EXTRACTION AND PURIFICATION HAS BEEN DELIVERED.
- 3.- A 250 ml. FOR HPLC SYRINGE HAS BEEN DELIVERED (PROCESS CONTROL)

III- WORK DEVELOPMENT

- 1.- BENCIL PENICILLINA ESCALED PROCESS THEORETICAL AND PRACTICAL EXPLICATION FROM DELIVERED DOCUMENTATION.
- 2.- PROCESS ESCALE UP TO FERMENTATION PILOT 42 l.
- 3.- QUALITY CONTROL TECHNICAL ASSEMBLY.

IV - ACHIEVED STRATEGY

- 1.- CUBAN TECHNICIANS HAVE BEEN TRAINED ON PRACTICAL KNOWLEDGE ON IMPLEMENTED FERMENTATION TECHNIQS.
- 2.- PROCESS CONTROL TECHNIQS HAVE BEEN INSTALLED AND SETTLED.

V - MAIN DIFFICULTIES

- 1.- THE FERMENTATION ON 42 L LEVEL HAS BEEN CONTAMINATED TWICE.
AN ESTERILIZATION TRIAL ON THE FERMENTER HAS BEEN REALIZED WITH REACH MEAN; BUT IT HAS CAUSED NEW CONTAMINATION ON THE FERMENTER.
AFTER A GLOBAL ANALYSIS IT WAS ESTABLISHED THAT AIR INSTALLATION ON THE FERMENTER (FILTER INCLUDED) DOESN'T HOLD THE BEST TECHNICAL CONDITIONS.

VI- EXPERTISE CONSIDERATION

- 1.- MUST BE REACHED THAT AIR ARRIVING AT FINAL FERMENTER FILTER WILL BE FREE OF HUMIDITY.
- 2.- IT MUST BE INSTALLED A PRE-FILTER FOR THE AIR THAT IS SUPPLIED TO THE FERMENTER.
- 3.- IT MUST BE INSTALLED A MAJOR CAPACITY FILTER ON THE FERMENTER INLET.

VII- CUBAN PART CONSIDERATION

- 1.- WE ESTIMATE THAT EVEN IF A FULL FERMENTATION HASN'T BEEN INCLUDED CUBAN TECHNICIANS RECEIVED THE NECESSARY KNOWLEDGE TO REALIZE THE FERMENTATION FOR ITS OWN.
- 2.- WE WILL FOLLOW EXPERTISE CONSIDERATION TO GET BETTER AIR INSTALLATION.
- 3.- THE NECESSARY FERMENTATIONS IN ORDER TO GUARANTEE TECHNOLOGY REPRODUCTIONS HAS BEEN MADE.

TECHNICAL REPORT

TECHNOLOGY TRANSFERENCE TO GET BENCIL PENICILLINA

Expertise : Dr. Ermanno Piacenza

*Training period : from 06.07.1990 to 15.07.1990
from 26.08.1990 to 26.09.1990*

STRATEGY : GETTING OF BENCIL PENICILLINA ON LABORATORY
ESCALE

DELIVERED DOCUMENTATION AND MEANS.

THE EXPERTISE ON HIS ARRIVAL, ACCORDING TO OWN - CRIMINIER
MILANO CONTRACT, DELIVERED TECHNOLOGICAL BOOKS TO GET BENCIL
PENICILLINA, AND MATERIALS LIST HERE ATTACHED, FOR
EXPERIMENTAL WORK DEVELOPMENT.

WORK DEVELOPMENT

- 1.- BENCIL PENICILLINA TECHNOLOGY PROCESS THEORETICAL
AND PRACTICAL EXPLICATION FROM DELIVERED DOCUMENTATION.
- 2.- PREPARATION OF EXPERIMENTAL MEANS TO GET BENCIL
PENICILLINA ON LABORATORY FERMENTERS LEVEL
- 3.- PROCESS CONTROL TECHNICAL ASSEMBLY.

ACHIEVED STRATEGY

BENCIL PENICILLINA CONCENTRATION REACHED AFTER 120 HOURS OF
FERMENTATION WAS 13.500 UI/ml. THAT HAS BEEN DETERMINATED BY
MICROBIOLOGICAL METHOD. THIS VALUE IS INSIDE THE RANGE
ESTABLISHED ON THE TECHNOLOGICAL BOOK DELIVERED BY THE
EXPERTISE.

MAIN DIFFICULTIES

INITIAL FERMENTATION PROCESS TEMPERATURE WAS NOT THE CORRECT ONE.

THERE ARE NO INSTALLATION NECESSARY TO GET FERMENTATIONS AT 25 DEGREE C ON FERMENTERS LEVEL.

EXPERTISE AND PROYECT CUBAN TECHNICIANS CONSIDERATIONS.

EXPERTISE

PROPOSED STRATEGY WAS REACHED. I CONSIDER A GOOD EXPERIENCE FOR THE TECHNICIANS AND FOR ALL PEOPLE INVOLVED ON THIS PROCESS DEVELOPMENT.

- 1.- I CONSIDER NECESSARY REFRIGERATION EQUIPMENT INSTALLATION TO GET ADEQUATE TEMPERATURE DURING FERMENTATION PROCESS.
- 2.- NEW TRIALS MUST BE MADE TO GET BETTER EXPERIENCE ON PROCESS AND MICROORGANISM.

CUBAN TECHNICIANS.

WE CONSIDER THAT PROPOSED STRATEGY FOR FIRST STEP HAS BEEN REACHED.

CUBAN TECHNICIANS HAVE BEEN TRAINED ON BUNCIL PENICILLINA TECHNICAL GETTING FROM

FILAMENTOUS FUNGUS

DURING THIS PERIOD OUR TECHNICIANS GOT THE KNOWLEDGE OF THIS FERMENTATION AND OF INCREMENTED FERMENTATION WHICH WILL BE VERY INTERESTING ON FUTURE FERMENTATION PROCESS.

- 1.- WE CONSIDER VERY IMPORTANT TO INSTALL REFRIGERATION EQUIPMENT TO GET ESCALE FERMENTATION OF 42 L.

RECEIVED MATERIAL TO GET G. POTASSIUM PENICILLINA.