



# PHARMACEUTICAL CANNABIS & INDUSTRIAL HEMP

# The Complete Proposal for Cultivation, Process, Quality Control & Development of Final Products

## **Specialized Cultivation Chambers & Hybrid Greenhouses**





Propagation, Cloning, Veg, Drying, Stages with A.I.Monotoring & Controlling Systems



Hybrid Greenhouses- up to 96% light transmittance with ETFE Glazing

## Scientific Equipment for Extraction- Quality Control - Research & Development









Rotary Evaporation - CO2 Extraction - Supercritical Fluid Chromatography - Short Path Distilation - UPLC



We provide the most complete line of equipment for the total process of **Cultivation**, **Processing**, **Quality Control and Research & Development of final Cannabis products** for the fastest payback of the investment.

Officially cooperating with **40 internationally recognized manufacturers**, with experience and continuous innovation in the field of scientific equipment as from 1984 in Greece and Cyprus and neighbor countries, we offer:

- Study and Proposal of Investment Plan (Construction-Laboratory-Licensing)
- Design Qualification, Supply and Installation of Technologically Advanced
  & Efficient Equipment (Certified GMP, ISO, ATEX-Explosion Proof)
- Full Technical & Scientific After-Sales Support and Special Training Courses
- Research & Development services for Final Products (Pharmaceuticals, Edibles, Isolates, etc.)
- Quality Assurance Services, Product Analysis, Quality Control and Interlaboratory Comparison Assistance (SOP, Greek FDA, GMP, GLP, ISO17025, etc.)

Our **Know-How** is based on the scientific team of HELLAMCO, supported by top-level University professors & researchers from Greece and abroad, who are at your disposal.

The **several thousands of instruments installed** by Hellamco in Universities, R&D, as well as Q/C bodies and entities, in the Industry (Pharmaceuticals, Cosmetics, Natural Products, Food, Materials, etc.), with complete support services coverage, assure the success of your investment. Please do not hesitate to contact us for the detailed consideration of your expectations and the determination of the most profitable proposal.





We cover virtually all production and processing phases of Pharmaceutical Cannabis, supported by a vast expertise that offers a pay-back of the investment even within two (2) years:

#### 1. Cultivation & Maximum Production of the Plants



 Chambers-Rooms for cultivation and drying. Fully adjustable conditions for temperature, humidity, CO2, lighting, etc., achieving up to 5-7 crops per year.



• Program, Monitor & Control Systems for all cultivation parameters.



• Special Hybrid Greenhouses fully controlled and with Efficient Energy utilization (Geothermal, Solar, Wind, etc.)

# 2. Extraction-Receipt of Cananbinoids Mixture (CBx, THCx)





- Rotary Evaporation
- Extraction-Isolation of Solvents
- CO2 Extraction, Methanol Extraction, etc.
- Steam Vacuum Distillation.
- Supercritical SFE & SFC Extraction Systems
- Large Scale Extraction Systems (up to 15 tons of dry product per day)

#### 3. Concentration of Cannabinoids Mixture



Rotary Evaporation



# 4. Separation and Purification of Cannabinoids



• Preparative Chromatography (Preparative LC)



 Preparative & Industrial Centrifugal Chromatography (FCPC)



• Short Path Distillation / Molecular Distillation

#### 5. Concentration of individual Cannabinoids



Rotary Evaporation

# 6. Additional Elaboration & Quality Control (QC)



• High Performance Thin Layer Chromatography (HPTLC)



- Gas Chromatography (GC)
- Gas Chromatography/Mass Spectrometry (GC/TOF/MS)



Particle & Droplet Sizing Systems



- Chromatography Instruments (HPLC, UPLC, UHPLC, GPC, SFC)
- Mass Spectrometry Instruments (MS, MS-MS, TOF, QTOF, IM/MS, GC/MSMS)



# 7. General Equipment

The Complete series of general laboratory equipment, will provide the design, construction, installation of a complete **Quality Control (QC) or Research & Development (R&D) Laboratory**, including all necessary infrastructure:



- Photosynthesis, Light & Leaf Area Meters
- Plant Physiology Equipment.



- Laboratory Scales & Humidity Measuring Devices
- Automatic Dosing Systems of High Accuracy



 Extraction and Filtration of Cannabinnoids and Terpenes, for Sample Preparation to detect Trace Metals and Pesticides



 Medical Graded Trimmers for Wet or Dry material (GMP/FDA



• Grinder, Pulverizer



Homogenizers, Mixers, Shakers, Stirrers



- IRMS (Authenticity, Seed Origin Identification)
- 8. Encapsulator, Spray Drying, ICP, ICPMS Systems for Heavy Metals, etc., determination Equipment and Software.



Our goal is to help you develop the infrastructure to produce innovative products (pharmaceuticals, cosmetics, edibles, drinks, vapes, etc.) with highest quality standards to effectively reach your target markets.



#### **Authorized Distributors of:**













































**HELLAMCO A.E.** SCIENTIFIC EQUIPMENT

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