**Services**

**Key Service: Scale-up of Biotech Processes and Plants**

Scale-up process design, laboratory tests, pilot and production tests, etc. are performed in our laboratories and our pilot plants to get the scale-up from the basic data or research outputs to full industrial scale know-how, engineering, equipment construction, hardware and software implementation, complete manufacturing plant supply and start-up.

**Engineering Services**

- Basic engineering
- Data & technical sheets
- Process and instrumentation sheets (P&I)
- Test run design and test run assistance
- Obsolete plants revamping
- Technology transfer

**Services to Turn Your Waste Into a Salable Product Via Sustainable Biotech Processes**

Some Successful Operations Performed

- Wastewater sludge turned into fertilizer
- Solid State Fermentation (SSF) residues post viable spores recovery turned into granular Bio-stimulants
- Biogas plant digestate turned into high value microbial fertilizer
- Spent grape skin turned into medium for DSSF (Dynamic Solid State Fermentation) production of yeast

**Transferable Technologies**

- Submerged Fermentation (SmF)
- Dynamic Solid State Fermentation (DSSF)
- Downstream Processing and Formulation
- Assembled and skid mounted (SmF, DSSF) units
- Thin Film Concentration Technology
- Media for SSF and DSSF Performance
- Biogas Digestates Conversion Into Fertilizers

All of them allowing to manufacture a wide range of food or standard grade Biotech AI.

**Some Product For Supply**

ACTIVE INGREDIENTS FOR FOOD, FEED, BEVERAGES (AFI)

- Yeasts for wines
- Ochratoxin A degrader

PROBIOTICS, POSTBIOBOTS (AHI) and COSMETICS (AFI)

- Bacteria based active ingredients

ACTIVE INGREDIENTS FOR PHARMACEUTICALS (API)

- Toll manufacturer only

MICROBIAL FERTILIZERS, BIOSTIMULANTS, BIOCONTROL INGREDIENTS (AAI)(As per Company’s policy these kinds are not available for EU, USA, China until 2020)

- Microbial Fertilizers
- Bio-control Agents
- Bio-stimulant Ingredients

MEDIA FOR SSF/DSSF (MSF)

- Media for SSF/DSSF for Sporulation and customization
- Media for SSF/DSSF for Biomass / Metabolites production

RAW ENZYMES for DIGESTATES and HIGH GRADE MICROBIAL FERTILIZERS from DIGESTATES

- Raw enzymes for getting available carbon source from biogas plant digestates
- Microbial Consortium to eliminate ammonium from biogas plants digestates
- Microbial Consortium to up-grade fertilizers efficacy
- Microbial high grade fertilizers from pre-treated biogas plants digestates

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**FOOD & FEED INDUSTRY**

**PHARMA & HEALTH CARE INDUSTRY**

**BIOSTIMULANTS & AGROPHARMA INDUSTRY**

**BIOMAS WASTE EXPLOITATION INDUSTRY**

**MEDIA FOR SSF & DSSF FOR ANY BIOTECH**

**SERVICES** (Engineering & Process Optimization)

**SmF FERMENTERS**

**DSSF BIOREACTORS** (Solid State)

**THIN FILM CONCENTRATORS** (WFE)

**TECHNOLOGIES AND PRODUCTS**
SmF Bioreactors Main Features

Gibob SmF fermentation plants are constructed according to its proprietary design, as well as the hardware and the software. Gibob SmF fermentation plants are offering all the operation options, as a batch or semi-continuous fermenter controlled automatically or manual.

Furthermore, the fermentation can be started launching one of the protocols stored into the plant pc or upon direct writing of a new protocol on the PC Desktop. The stored protocols can be easily modified at any time if required. Operation and its control can be local from the control board or remote from your PC, tablet or phone.

Full record of performed operations can be called back at any time and details of all the data shown at the desired time (precision of seconds). Our system is very useful either for full production traceability (process validation) or for research programs.

The hydraulic, mechanical, electric and electronic parts are of the best market quality for full production traceability (process validation) or for research programs.

Some Granted Advantages

- Full automation for all phases
- Local and remote controllable
- Batch or semi-continuous operation
- Validatable process
- High fermentation efficiency
- Records available in detail at any time

Some Special Features

- Easy to use software
- Safe and easy operation
- Simple maintenance
- Components and spare parts easily available

Thin Film Concentration Plant General Features

Gibob thin film concentration plants are adopting the principle of generating high turbulence on the evaporation surface, therefore high heat exchange rate, into the fluid to be concentrated. This, thanks to special blades, moved by a central shaft into a jacketed vertical cylinder, on the surface of which the liquid is flowing. It secures very short residence time (few seconds maximum), so avoiding products degradation.

The principle is well known, nevertheless Gibob can claim a proprietary special design, hardware, and software and in particular the process and the process related operation.

The plant can be sterilized, it can be heated by steam or hot water as well and it can operate under pressure or vacuum.

Performances & Advantages

- Capacities: 100 to 1,000 kg/h evaporation
- Temperatures: 20°C to 185°C
- Vacuum or up to 10 bar pressure
- Very short residence time (few seconds)
- Suitable to concentrate sensible products

Special Features

- Extreme concentration capability
- Easy assembling and disassembling
- Easy cleaning
- Fully automated operation
- Easily available spares