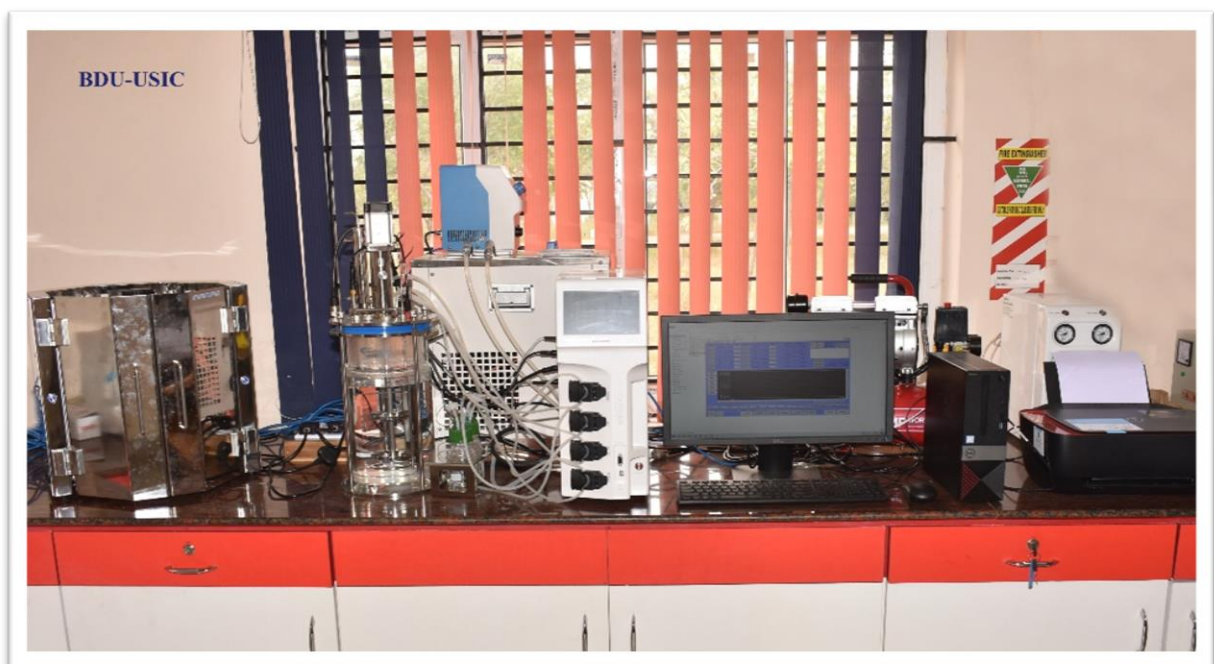
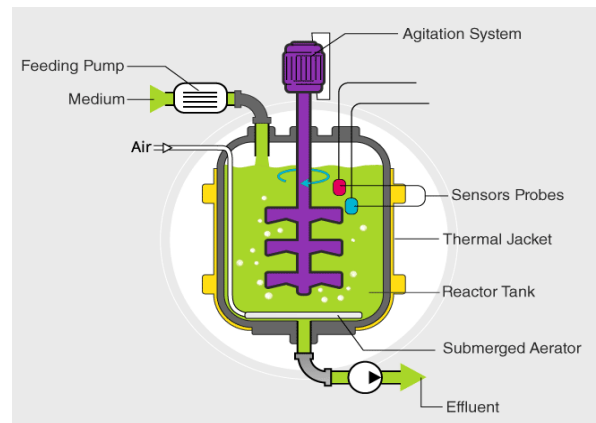


## Bioreactor

- ❖ The principles of bioreactors involve creating optimal conditions for biological reactions, controlling environmental factors, and maximizing microbial growth and product formation kinetics.
- ❖ Bioreactors are used for the production of biomass, metabolites, and antibiotics.
- ❖ The bioreactor is the heart of any biochemical process as it provides an environment for microorganisms to obtain optimal growth and produce metabolites for the biotransformation and bioconversion of substrates into desirable products.
- ❖ It provides optimum conditions like temperature, pH, substrate, oxygen, etc required for the culturing of cells producing desired products.



### **Specific Features of the Bioreactor:**

- Borosilicate double jacketed glass autoclavable Total Volume of **7 Liters** (Working Volume **5 litres**) with top plate and complete accessories set up
- Borosilicate single jacketed glass autoclavable Total Volume of **1.5 – 2 (Liters)**, Working Volume **1 - 1.5 Liters** with complete accessories set up **Bottom Heating Plate:** Temp range up to up to **90°C** with Resolution **0.1°C**
- Direct Drive Top AC Servo / BLDC Motor; 10 - 1500 rpm Agitation Range.

- Temperature- 0-150°C with  $\pm 0.1^\circ\text{C}$  Thermostat system; heating & cooling PID control, built in heat exchanger, automatic cooling water valve.
- 0.0 - 14.0 pH of set point with programmable PID Control, Temp rang 0-140°C, autoclavable electrode.
- Ruston Turbin six blades impeller atandard with fermentation / pitched blade standard with cell culture, additional Foam breaker OD 90mm material SUS 316, interchangeable customized impellers.
- Batch culture feeding, 4 x Built-in feeding peristaltic pump, speed range 0 - 70rpm with programmable feeding control, Air compressor air flow 43L/min.

### Technical specifications:

<b>Control Systems:</b>	SCADA Control
<b>Calibrations</b>	Calibration of pH, DO, Temperature, AF, AGIT, MEM, ORP, O2, CO2, OD & Pressure and Real-time Graphic data checking
<b>LED Setup</b>	Compatible with 7 L Vessel LED illumination with full spectrum of natural imitated sunlight spectrum (430 & 630 nm) w/o UV & NDIR; Light intensity control range 10 to 100%; Light intensity max 10000 lux; LED dimmer lighting control with 20 no's LED Lamp
<b>Gas Mixers</b>	Automatic Mixer type - Air, CO2, O2, N2, etc.
<b>Environmental Conditions</b>	Environment Ambient Temp. 0 to 50oC, Relative Humidity 85%

### Details of Bioreactor

<b>Brand</b>	Centrion (Korea)
<b>Model</b>	Biocanvas LF
<b>Sponsored Agency</b>	DST- PURSE programme (Phase -2)