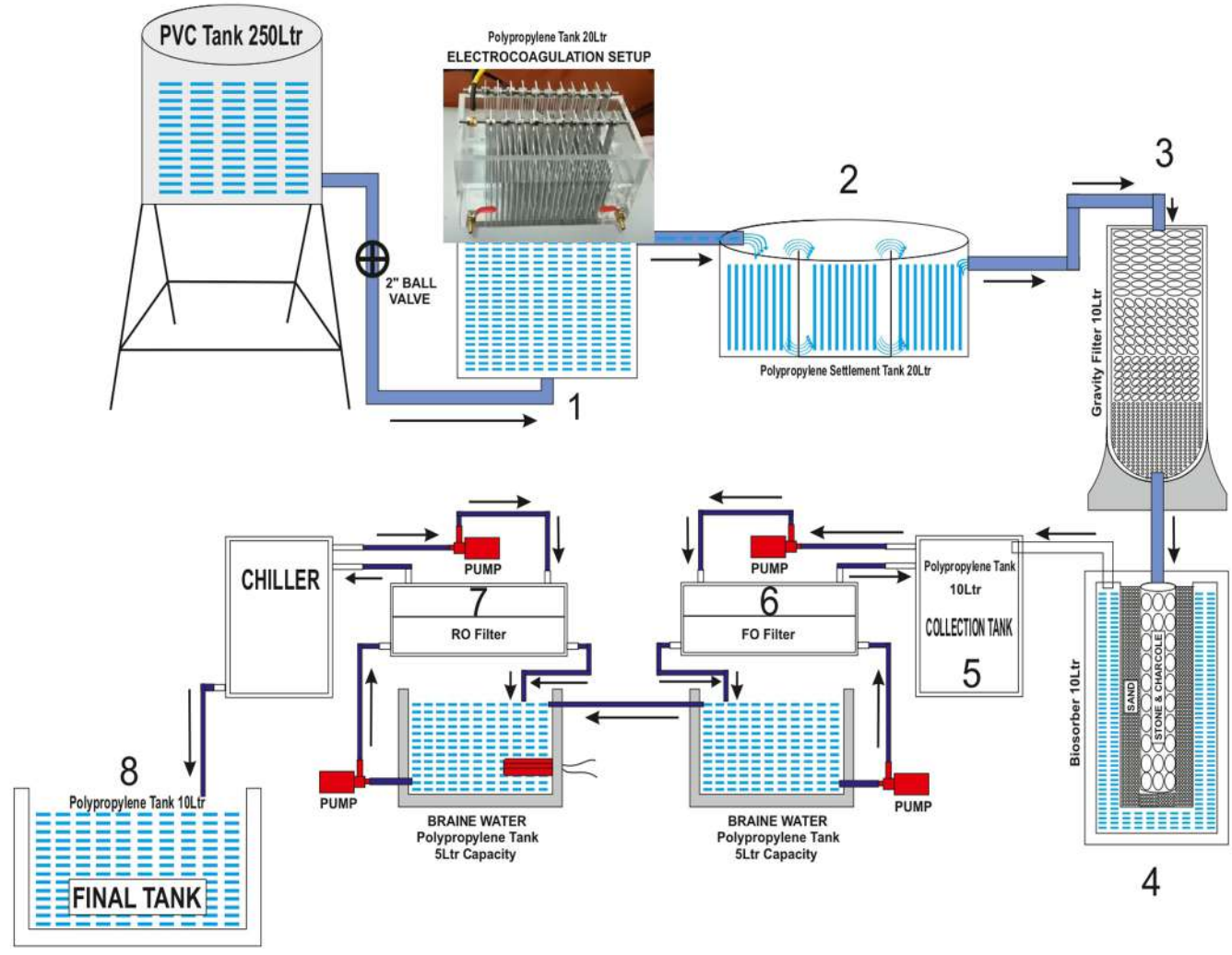
LAB XMEN

Waste water treatment Plant

LAB SKID



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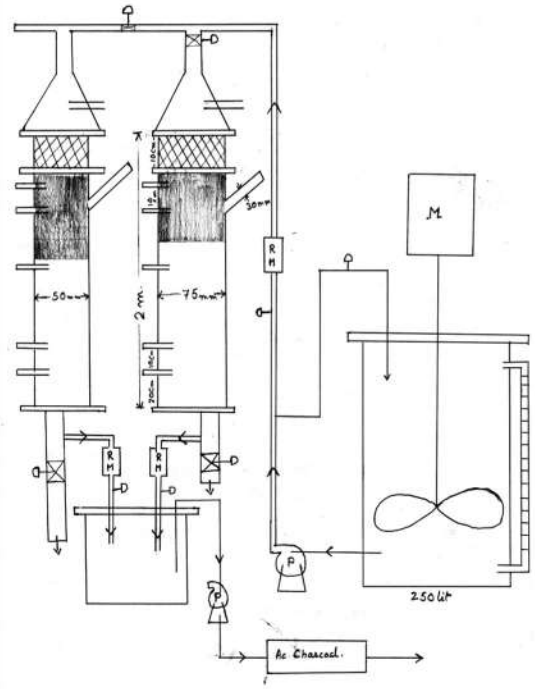
Experimental set-up for the study of inverse fluidization:
1. Main Reservoir:':
1.1 Capacity
1.2 MOC
1.3 Starring
1.4 Water level Indicator
1.5 feeding
2. Main Experimental Column:-
2.1. Quantity
2.2. MOC
2.3. Capacity
2.4. Pressure rating
2.5. Temperature rating
2.6. Digital Manometer
2.7. Feed valve
2.8. Velocity meter
2.9. Safety out let on top.
3. Collecting or Settling washing & Filtering Tank :-
3.1. Quantity 2 Nos.
3.2. MOC PVC or SS304
3.3. Capacity 5 litres each (approx.)
3.4. Settling arrangement Bottom outlet cock provided for layer separation
3.5. Outlet one channel to main reservoir .
Other channel through activated charcoal for further filtering
250lit approx.
PVC
by heavy duty IHP motorized stirrer with Digital timer
Provided
externally and tllrough bypass line.
2No.
Thick resign quoted PVC sheet transparent tube
5 litres (approx.)
Upto 4 kg/crrr'(g)
Up to 125 °c
Provided to get in 5 different levels.
Provided in top
Provided in bottom
4. Piping:-
4.1. Various set of interconnecting piping of SS 304, with valves, Rotameter & fittings as required
5. Pumps
5.1. Two set of magnetic noncontact pump with flowmeters & fittings as required.
6. Mounting:-
6.1. MS structure for free standing floor mounting arrangement



INV.FLUIDIZATION SETUP LAB-X

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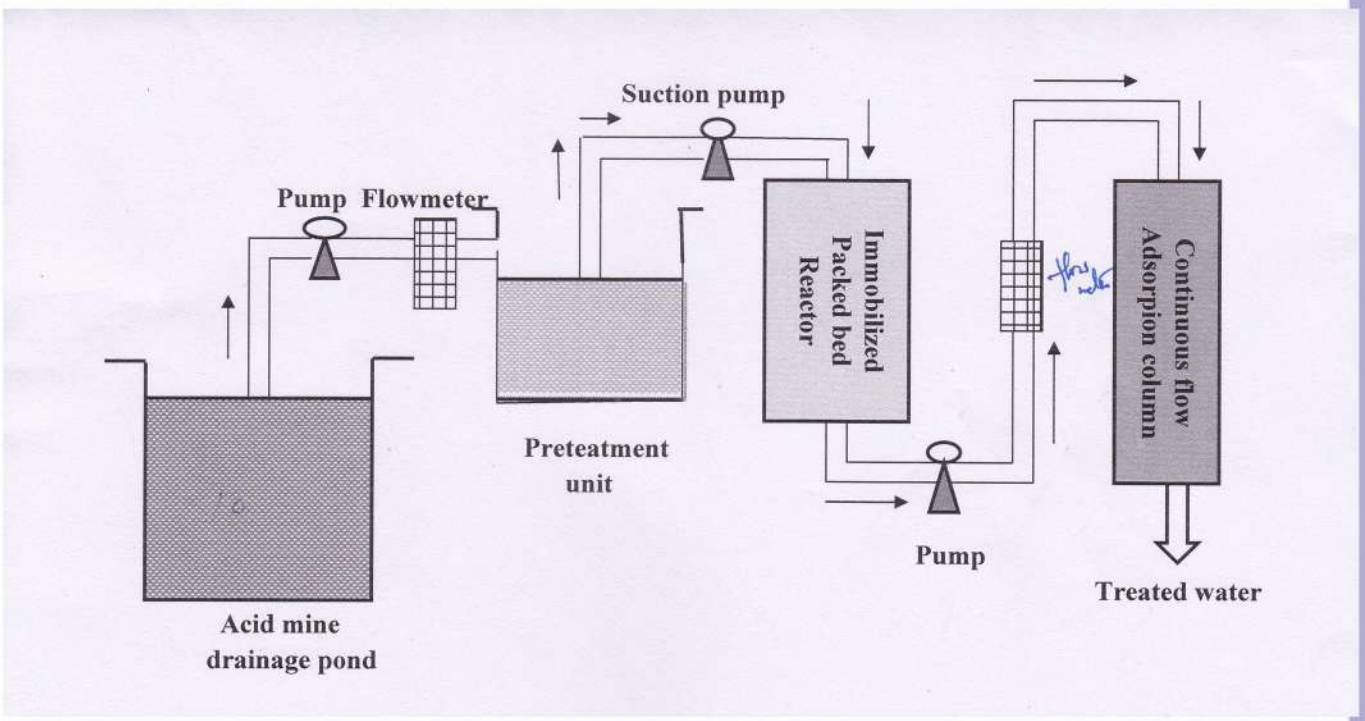
Technical Specifications:

Features:

1. **Bioreactor: 2 nos**
   Materials of Construction: Perspex, Shape: Vertical Insidediameter:8cm, Length: 2 ft
b) Accessory container:6 nos
c) Water pump: 4 nos
   Capacity: ½ hp Imported
d) U-tube manometer e) Equipped with stainless pipelines through the set-up
f) Easy inlet and outlet for analysis.
g) Bioreactors to be equipped with pH probe, temperature probe, and 1 gas inlet and exit point connected with an air pressure gauge.
h) Supplementary chambers well connected to the bioreactor with easy handling channel.
i) Water storing reservoir equipped with a tap for regular inspection.
j) Sensor probe for water level detection. k) Mesh 60/60
l) All the containers including bioreactors and accessory containers should be graded. m) flow control valves- 8 nos n) Waste water pond- 1 no, o) Treated, water accumulator- 2 nos.



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TECHNICAL SPECIFICATIONS OF PHOTO BIO REACTOR WITH PH, TEMPERATURE, FLOW CONTROLLER

- **Feed Tank (with Lid)**

MOC	SS304/PC
Total capacity	40 L approx.
Working capacity	38 L approx.
Nozzles	Outlet of feed tank to adsorption tank through mechanical pump and bypass valve.
Flow measurement and control	Through Rotameter(1-10 mL/min)
Bypass facility	A Completete bypass line is directly connected to Photobioreactor vessels.
Exhaust valve	At bottom to clean the tank.

- **Adsorption Tank (with Lid)**

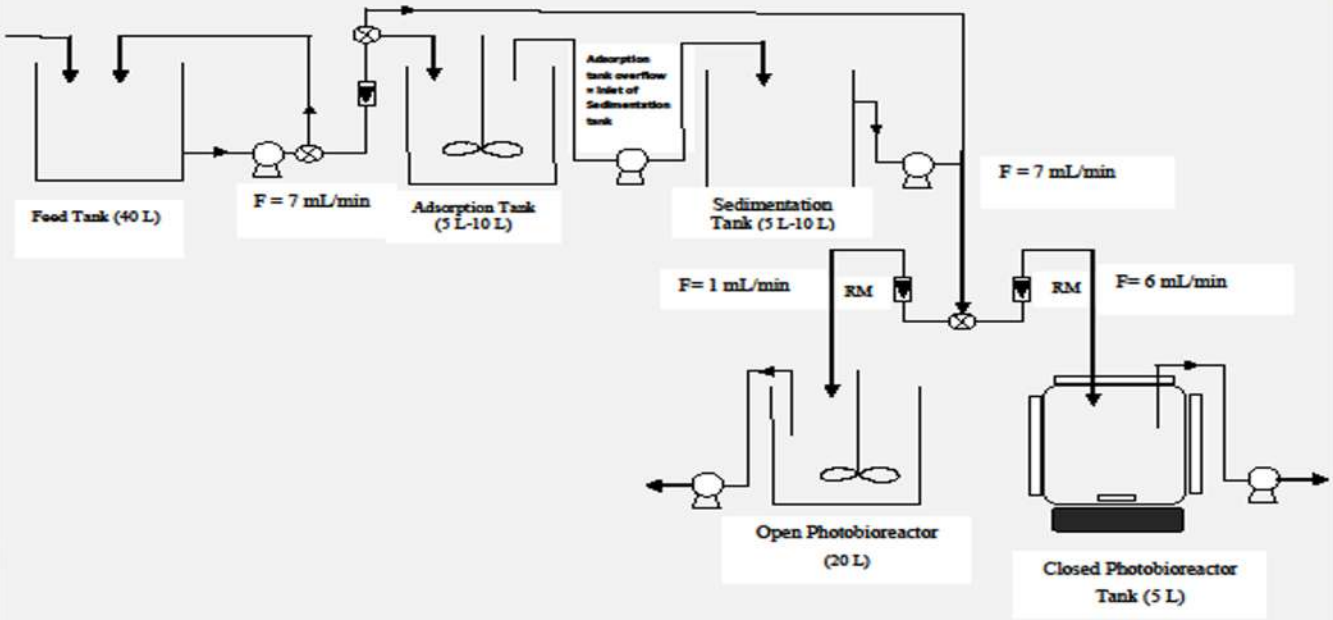
MOC	SS304/PC
Total capacity	20 L approx.
Agitator	Slow speed Mechanical agitator with speed control.
Nozzles	Inlet to the Adsorption tank through mechanical pump and bypass valve.
Flow measurement and control	Through Rotameter (1-10 mL/min).
Exhaust valve	At bottom to clean the tank.

- **Sedimentation Tank (with Lid)**

MOC	SS304/PC
Total Capacity	20 L (approx)
Agitator	Very slow speed Mechanical agitator with speed control.
Nozzles	Inlet flow rate of the sedimentation tank is equal to the outlet flow from adsorption tank.
Flow measurement and control	Through Rotameter(1-10 mL/min).
Exhaust valve	At bottom to clean the tank.

- **Open Photobioreactor Tank**

MOC	Glass
Total capacity	20 L approx.
Nozzle	Inlet flow to the Open photobioreactor tank through mechanical pump and bypass valve.
Flow measurement and control	Through Rotameter (0-5 mL/min).
Agitator	Very slow speed Mechanical agitator with speed control.



Schematic diagram of the LAB-X Photo bioreactor setup

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