Experiment 1

Parts of a Bioreactor

Aim: To identify different parts of a bioreactor and understand their functions

Theory: A bioreactor is a system for reactions that involve living cells or biologically active molecules. The growth or activity of these entities is extremely sensitive to various parameters. A bioreactor provides a controlled environment for reactions where these parameters are maintained at their optimum values.

The following parts are to be identified:

Impeller: Achieves the function of mixing

Baffles: Disrupts vortex formation

Sparger: Disperses the air in the form of bubbles

Stirrer shaft and motor: Holds impeller at fixed position and transfer power to it

Heating coil: Temperature control

Ports: Sampling, inoculation, DO probe, pH probe, temperature probe, air inlet and outlet, feed inlet and outlet, acid/base flow

Pumps: For feed flow

Control unit: Measurement and control

Gas Analyser: Determination of exit gas composition.