

Development of Novel Bioreactor Control Systems.

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Introduction

A bioreactor refers to any manufactured device or system that supports a biologically active environment. In one case, a bioreactor could also be a vessel during which a chemical process is run which involves organisms or biochemically active substances derived from such organisms.

De Beeze and Liebmann (1944) used the primary large scale (above 20 litre capacity) fermentor for the assembly of yeast. But it had been during the primary war, a British scientist named Chain Weizmann (1914-1918) developed a fermentor for the assembly of acetone.

Novel Bioreactor Control System

An apparatus for growing organisms (yeast, bacteria, or animal cells) under controlled conditions. Used in industrial processes to supply pharmaceuticals, vaccines, or antibodies. Also went to convert raw materials into useful by products like within the bioconversion of corn into ethanol.

There are many various sorts of bioreactors including: stirred-tank, rocker, air lift and fixed-bed. Traditional multiple-use bioreactors require cleaning after each cell culture run. Smaller-scale bioreactors are glass systems and may be sterilized in an autoclave [1,2].

Bioreactor consists of a buried trench with woodchips through which the tile water flows before entering a surface water body. Microorganisms from the soil colonize the woodchips. These microorganisms "eat" the carbon from the woodchips and "breathe" the nitrate from the water.

Bioreactor design may be a relatively complex engineering task, which is studied within the discipline of biochemical/bioprocess engineering. Under optimum conditions, the microorganisms or cells are able to perform their desired function with limited production of impurities.

Bioreactors work well in biomes where organic matter is plentiful, like Kelp Forests or Mushroom Forests, where Solar Panels could also be less efficient. It is also easy to provide a Bioreactor with fuel if one keeps an Exterior Growbed, Interior Growbed or Alien Containment filled with fish nearby [3,4].

The biological systems involved include enzymes, microorganisms, animal cells, plant cells, and tissues. The bioreactor could also be an area where an optimum external environment is provided to satisfy the wants of the biological

reaction system so as that a high yield of the bioprocess is achieved.

Obviously, there are complicated interactions between the biological system and thus the physical and chemical aspects of this process. To design an appropriate bioreactor for a specific bioprocess, intensive studies on the biological system, like cell growth and metabolism, genetic manipulation, and protein or other product expression are needed to know the cells' requirement on their physical and chemical environment.

They are systems or devices that supports a biologically active environment. They are vessels during which a chemical change is administered which involves organisms or biochemically active substances derived from such organisms. They can be either aerobic or anaerobic. They are commonly cylindrical, ranging in size from liters to cubic meters, and are often made from chrome steel. They supply a homogeneous (same throughout) environment by constantly stirring the contents. They give the cells a controlled environment by ensuring an equivalent temperature, pH, and oxygen levels.

References

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