

Optimal experimental design for a respirometer to assess the microbial activity

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Abstract

The consumption of oxygen can be used to evaluate the biological activity in the aerobic microbial process. In order to measure oxygen uptake rate a respirometer and airtight-type reactor were used. Mostly the experiments were performed to measure OUR (oxygen uptake rate) and AOU (accumulated oxygen uptake) at various conditions. By examining the result, we found the unstability of the apparatus, then we tried to improve the accuracy of the respirometer. Many efforts were focused on increasing the reactor surface area-to-volume ratio, efficient CO₂ uptake by KOH, adequate agitation method, etc. Overall we expect to design a different type of respirometer which showing better performance.

References

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