

Parallel use of shake flask and microtiter plate online measuring devices (RAMOS and BioLector) reduces the number of experiments in laboratory-scale stirred tank bioreactors.

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Abstract

Conventional experiments in small scale are often performed in a 'Black Box' fashion, analyzing only the product concentration in the final sample. Online monitoring of relevant process characteristics and parameters such as substrate limitation, product inhibition and oxygen supply is lacking. Therefore, fully equipped laboratory-scale stirred tank bioreactors are hitherto required for detailed studies of new microbial systems. However, they are too spacious, laborious and expensive to be operated in larger number in parallel. Thus, the aim of this study is to present a new experimental approach to obtain dense quantitative process information by parallel use of two small-scale culture systems with online monitoring capabilities: Respiration Activity MONitoring System (RAMOS) and the BioLector device.

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