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Modeling and Dynamic Optimization of Protein, Cell and Spore Productions by Bacillus Thuringiensis Kurstaki LIP

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Abstract: Dynamic optimization of proteins (including endotoxin), cells and spore production by B. thuringiensis needs to use robust models coupled with control strategies. In this work, two models were proposed to describe proteins and spores production using Bacillus thuringiensis kurstaki LIP. Models were calibrated and the obtained parameters were in the literature range. The best model was selected to implement two control strategies assuming fed-batch and Sequential Batch reactor cultures. Both approaches allowed to maximize protein and spore productivities, but the fed-batch strategy gave the best performances.