EB – Cinética da Biorreação: Batch Reactors

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17 de setembro de 2024

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1 Definitions

6 Relationship between cell grownth and substrate consumption

As rule of thumb

 $Spprox 3\,K_S$

Cell grownth phases

Elaborar cada fase de crescimento

1. Lag

шαε

2. Exponential

Stationary
 Death

Biomassa

Elaboração da biomassa

Modelos para aproximar o crescimento celular 1. Malthus model

2. Verhulst Model

Verhulst Model

 $\frac{\mathrm{d}X}{\mathrm{d}t} = k \, X (1 - \beta \, X) \iff$

 $\iff X = rac{X_0 \, \exp{(k \, t)}}{1 - eta \, X_0 \, (1 - \exp{(k \, t)})} \iff t = rac{\ln{\left(rac{-x(x_{ ext{max}} - x_0)}{x_0(x - x_{ ext{max}})}
ight)}}{\mu_{ ext{max}}}$

 $egin{cases} k = \mu; \ eta = X_{ ext{max}}^{-1} \end{cases}$