BIOREACTOR ENGINEERING
Chapter 3
Culture Kinetic Study of Continuous Fermentation

by
Chew Few Ne
Faculty of Chemical & Natural Resources Engineering
cfne@ump.edu.my

The following data were obtained using a chemostat for the production of yeast. Determine the μ_{max} and K_s

Dilution rate (h^{-1})	Carbon substrate concentration (mg/L)
0.1	16.7
0.2	33.5
0.3	59.4
0.4	101
0.5	169
0.6	298
0.7	702

Culture Kinetic Study of Continuous Fermentation by Chew Few Ne

A chemostat is operated to produce single cell protein using ethanol with feed concentration of 22 g/L. The cell growth kinetics on ethanol values are μ_{max} = 0.5/h and K_s = 30 mg/L. Calculate the required dilution rate for maximising the cell productivity and minimising the loss of unused ethanol in the effluent.