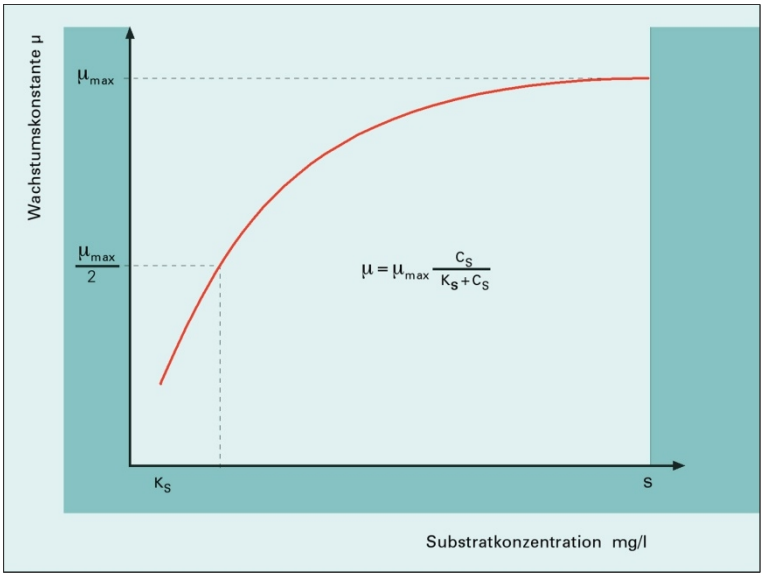

Growth rate (Monod kinetics)

Monod kinetics (growth of bio mass per time and substrate concentration)

$$\mu_{beob} = \frac{\mu_{max} \cdot C_S}{K_S + C_S} \qquad \text{(Gl. 1)}$$

μ_{beob}	observed rate of growth	[h^{-1}], (actual rate of growth)
μ_{max}	maximum rate of growth	[h^{-1}]
C_S	Substrate concentration	[mg/l]
K_S	semi-saturation constant, K-value	[mg/l]

Dependancy of rate of growth on substrate concentration, Monod relation [Schlegel, 1992]

Increase of micro organisms (Exponential growth):

$$N_t = N_0 \times 2^n \qquad \text{(Gl. 2)}$$

N_t	number of cells at time t	[-]
N_0	number of cells at time t = 0	[-]
n	number of divisions	[-]