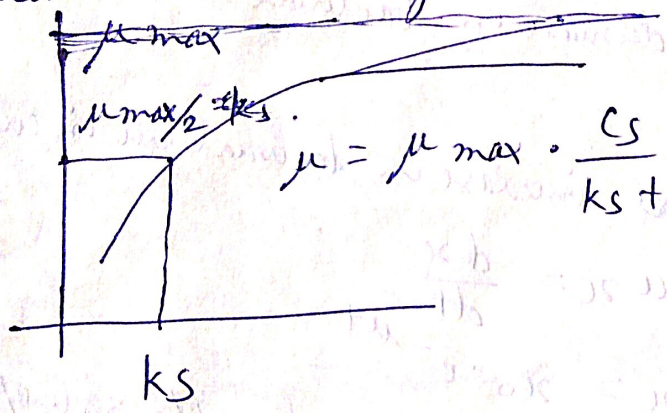
Growth limiting substrate (Hydrogen donor, N, S, or P source) are controlled & they controle the concentration of Medium.

The substrate limitation may be used to keep the actual growth constant μ less than the ~~possible maximum~~ maximal growth constant possible at the substrate concentration μ_{max}.

The dilution rate D can be varied over a wide range without risk of wash out.

Here, The dilution rate must not excud μ_{max}.

The dependence of growth constant μ on the substrate concentration C_s gives a saturation curve.



Generally bacteria can grow at a low substrate concentration (10mg glucose/l medium), at maximal rate.

$\mu \propto C_s$ at which, $\mu = \frac{1}{2}\mu_{max}$.

K_S is one of the fundamental growth parameters of a constant culture, together with Y (yield) and μ_{max}.