

$$\frac{dX_i}{dt} = a_1 \frac{K_1^n}{K_1^n + X_a^n} + b_1 \frac{X_i^n}{K_3^n + X_i^n} - c_1 X_i$$

$$\frac{dX_a}{dt} = a_2 \frac{K_2^n}{K_2^n + X_i^n} + b_2 \frac{X_a^n}{K_4^n + X_a^n} - c_2 X_a$$