SUPPLEMENTARY DATA
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APPENDIX 1

Approximation to CCR of logistic growth function
The signed curvature K of a plane curve given as g = f(t) is:

(5) $$K = \frac{g''}{(1+g'^2)^{3/2}}$$

We made the assumption that the squared slope of the plane curve g(t) (gOt- plane) is smaller than one; i.e.:

(6) $K \approx g''$ when $g'^2 << 1$ and $0 < \mu < 4/g_{max}$)

The extreme points of the curvature change rate can be determined as the points where the first derivative of the rate of change in curvature has zero values; i. e., to find them, we have to solve the equation:

(7) $K'' = 0$, (K''– second derivative of K).

The solutions of the equation (7) in the case of a logistic model (Equation 2) are equations (4 a, b, c).

APPENDIX 2.

Very often the logistic function is used in another form:

(8) $$g(t) = \frac{c}{1+e^{a+bt}} + d$$

where t is time in days, g(t) is the growth function value at time t, and *a, b, c, d* are fitting parameters. Applying the CCR method to the logistics function (Equation 8), we obtain the growth metrics as:

(9a) $$t_0 = \frac{-a}{b} + \frac{1}{b} ln\left(5 - 2\sqrt{6}\right)$$

(9b) $$t_{inf} = \frac{-a}{b}$$

(9c) $$t_f = \frac{-a}{b} + \frac{1}{b} ln\left(5 + 2\sqrt{6}\right)$$

But in this case, it is difficult to give a biological interpretation of the model parameters of the logistic function (8); *a* is positive and *b* is negative during growth. That is why we prefer to work with the logistics function in the form (2).