Slightly Modified Gompertz Function

- Gompertz differential equation

$$\frac{\mathrm{d}x}{\mathrm{d}t} = h(t) \ln\left(\frac{k}{x(t)}\right) x(t)$$

  - Gompertz: $h(t) = \alpha = const.$

- Possible solution

$$x(t) = k\mathrm{e}^{\left(-\mathrm{a}_0\mathrm{e}^{(-\int \mathrm{h(t)dt})}\right)}$$

- Choosing

$$h(t) = a_1\mathrm{e}^{(-\mathrm{a}_2\mathrm{t})}$$

- leads to

$$x(t) = k\mathrm{e}^{\left(-\mathrm{a}_0\mathrm{e}^{\left(\frac{\mathrm{a}_1}{\mathrm{a}_2}\mathrm{e}^{(-\mathrm{a}_2\mathrm{t})}\right)}\right)}$$