



Sigmoidal Growth Models Fit Comparison

Equations:

Gompertz:

$$y = A \exp(-\exp(B - Cx))$$

Hill:

$$y = A + \frac{Bx^D}{C^D + x^D}$$

Richards:

$$y = \frac{A}{(1 + B \exp(-Cx))^{\frac{1}{D}}}$$

Logistic:

$$y = \frac{A}{1 + B \exp(-Cx)}$$

Weibull:

$$y = A - B \exp(-C \times x^D)$$

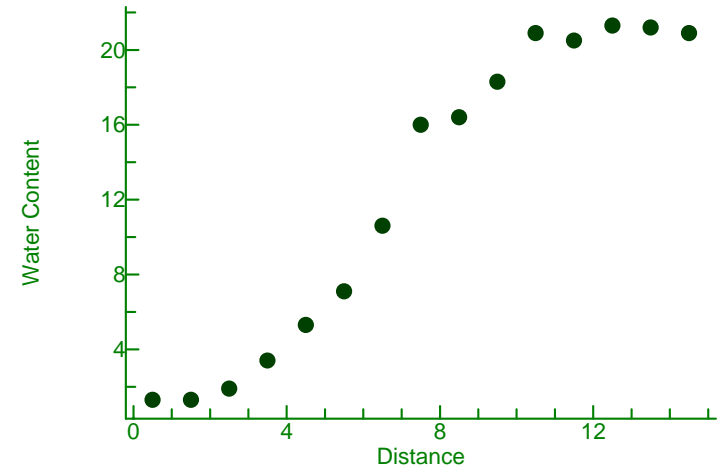
MMF:

$$y = \frac{AB + Cx^D}{B + x^D}$$

Data:

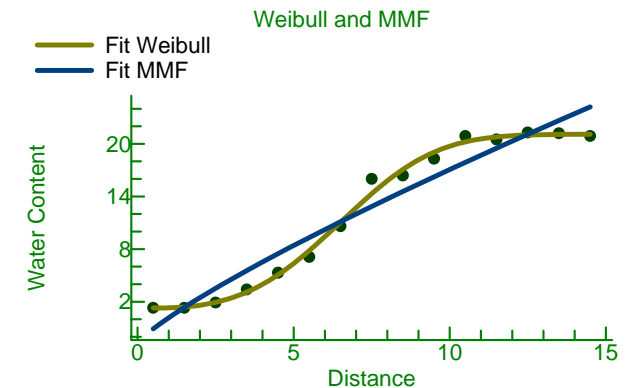
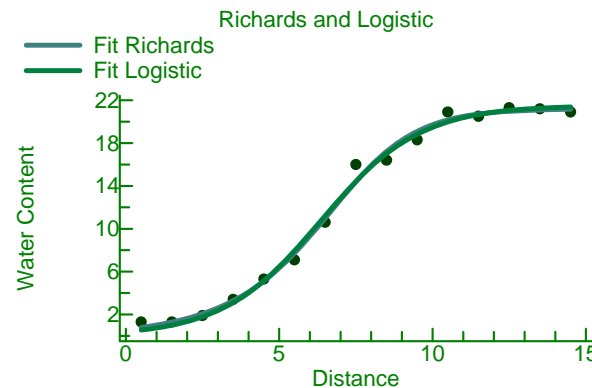
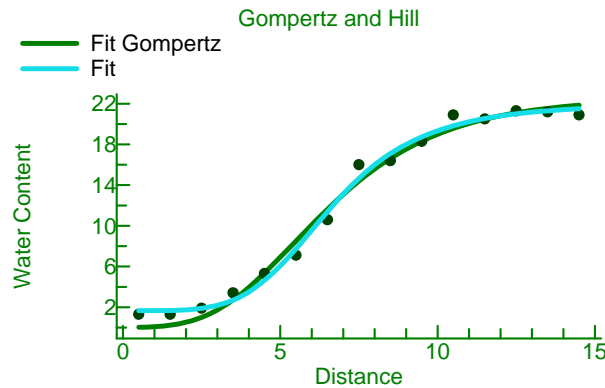
Distance	Water Content
0.5	1.3
1.5	1.3
2.5	1.9
3.5	3.4
4.5	5.3
5.5	7.1
6.5	10.6
7.5	16
8.5	16.4
9.5	18.3
10.5	20.9
11.5	20.5
12.5	21.3
13.5	21.2
14.5	20.9

Distance v Water Content Data Plot



Description:

In this example a typical pharmacodynamic dataset of water content versus distance has been plotted. This dataset has then been fitted with six different sigmoidal growth models. Three separate graphs have then been produced, each with two of the fit models, to show the variations in the fits of the same data. These charts have been displayed with formatting and the results of some goodness of fit test statistics have been displayed for each model.



Goodness Of Fit Test	Gompertz	Hill	Richards	Logistic	Weibull	MMF
Chi Squared	12.590491	6.369921469	5.5228835	6.2102433	5.446804646	63.64959582
F Test	1.0650989	1.006750949	1.0023695	1.0210644	1.005766972	1.071816598
F Test Significance	0.9148063	0.991297511	0.9969388	0.9717912	0.992562251	0.910490199
T Test	-0.842624	-2.75383E-13	-0.1287663	-0.4126396	1.08236E-10	2.83939E-13
T Test Significance	0.4159177	1	0.8998668	0.6871475	1	1
R Squared	0.9888032	0.993294321	0.9942096	0.9937265	0.994266095	0.932995441
Iterations	32	37	58	1099	101	105
Degrees of Freedom	15	15	15	15	15	15