ToxGenie Point Estimation Report

Report Date: 2026-06-28 10:58:17

Study Title:	**Daphnia magna Acute Immobilisation Test**
Analysis Method:	Probit: Maximum Likelihood Estimation (Example C)

Study No.:	Sample-123	**Test Material:**	Test Chemical
Test Species:	Daphnia magna	**Test Medium:**	Elendt M4

Table 1. Data Summary for Probit Method

(Unit: mg/L)

Dose	log10 Dose	No. Exposed	No. Responding	Proportion	Corrected Prop.	Empirical Probit
Control	Control	10	0	0.0000	0.0000	-inf
3.2	0.5051	10	1	0.1000	0.1000	3.7184
5.6	0.7482	10	1	0.1000	0.1000	3.7184
10	1.0000	10	2	0.2000	0.2000	4.1584
18	1.2553	10	8	0.8000	0.8000	5.8416
32	1.5051	10	9	0.9000	0.9000	6.2816

(inf or -inf: positive or negative infinity)

Table 2. Ordinary Least Squares(OLS) Regression Summary on the test data

Dep. Variable:	Empirical Probit	R-squared:	0.879
Model:	OLS	Adj. R-squared:	0.838
Method:	Least Squares	F-statistic:	21.7
Date:	Sun, 28 Jun 2026	Prob (F-statistic):	0.0187
Time:	10:58:17	Log-Likelihood:	-2.2859
No. Observations:	5	AIC:	8.572
Df Residuals:	3	BIC:	7.791
Df Model:	1	nan	nan
Covariance Type:	nonrobust	nan	nan

nan	coef	std err	t	P>|t|	[0.025	0.975]
const	1.8361	0.662	2.774	0.069	-0.271	3.943
log10 Dose	2.8996	0.622	4.659	0.019	0.919	4.880

Omnibus:	nan	Durbin-Watson:	2.124
Prob(Omnibus):	nan	Jarque-Bera (JB):	0.527
Skew:	-0.336	Prob(JB):	0.768
Kurtosis:	1.558	Cond. No.	5.84

Abbreviations & Definitions:
[Model Fit]
- R-squared: Coefficient of determination (Goodness of fit), Adj. R-squared: Adjusted for predictors
- F-statistic: Test for overall significance, Prob (F): P-value for F-statistic
- AIC: Akaike Information Criterion, BIC: Bayesian Information Criterion (Lower is better)
- Log-Likelihood: Natural logarithm of the Likelihood function
[Coefficients]
- Coef: Regression Coefficient, Std err: Standard Error of the coefficient
- t: t-statistic (Coef / Std err), P>|t|: P-value (two-tailed significance test)
- [0.025 0.975]: 95% Confidence Interval for the coefficient
[Residual Diagnostics]
- Omnibus / Prob(Omnibus): Test for normality of residuals
- Jarque-Bera (JB) / Prob(JB): Test for normality (based on Skew/Kurtosis)
- Skew: Measure of asymmetry, Kurtosis: Measure of 'tailedness'
- Durbin-Watson: Test for autocorrelation (Value ~ 2.0 indicates no autocorrelation)

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- Cond. No.: Condition Number (Measure of multicollinearity)n

Table 3. Goodness-of-Fit Test (Chi-Square)

Chi-Square	Degrees of Freedom	p-value	Conclusion
3.4747	3	1.0000	Good Fit (Acceptable Model)

P > 0.05 indicates 'Good Fit'

Table 4. Data Summary for Working Probit Curve

Intercept	Slope	R-squared
1.6200	3.0701	0.8595

Table 5. Point Estimates

(Unit: mg/L)

Level	Estimates	95% Lower Confidence Limit	95% Upper Confidence Limit
EC10	4.8232	1.9217	7.1894
EC20	6.7103	3.4444	9.4387
EC25	7.6072	4.2555	10.5746
EC30	8.5144	5.1071	11.7985
EC40	10.4355	6.9280	14.7359
EC50	12.6212	8.8880	18.8019
EC60	15.2647	11.0044	24.8579
EC70	18.7089	13.4088	34.5638
EC75	20.9399	14.8163	41.8857
EC80	23.7388	16.4656	52.1697
EC90	33.0271	21.3493	94.6800

Note: The 95% Confidence Intervals (Fiducial Limits) were calculated using Fieller's Theorem (Finney, 1971)

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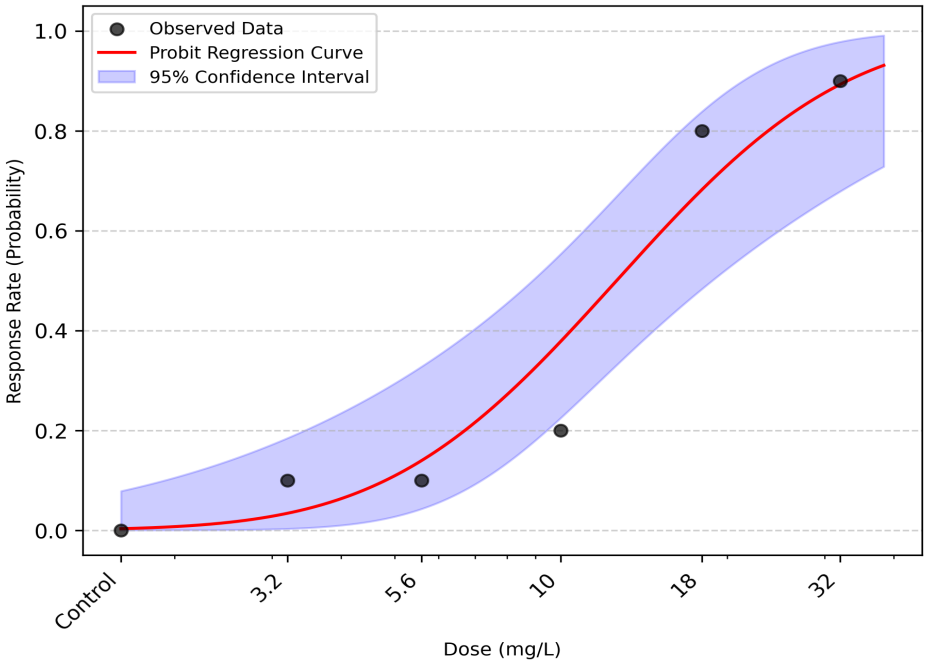

Figure 1. Dose-response curve of the probit-transformed response rates (Example C) versus the dose.

Analyst: ToxGenie