Hypothesis test results for analysis of estrous cyclicity using the continuous-time Markov model

Stage[a]	Comparison[b]	p-value[c]	Significance[d]	Stage Length Difference[e] (days)
Diestrus	Low-Control	1.000	None	-0.0
Diestrus	Mid-Control	1.000	None	-0.2
Diestrus	High-Control	1.000	None	0.1
Estrus	Low-Control	0.338	None	-0.3
Estrus	Mid-Control	0.072	None	-0.4
Estrus	High-Control	0.026	$p < 0.05$	-0.4
Metestrus	Low-Control	0.223	None	-0.2
Metestrus	Mid-Control	0.019	$p < 0.05$	-0.3
Metestrus	High-Control	1.000	None	0.0

a: Insufficient data to evaluate proestrus stage.

b: Sample sizes for the Control, Low, Mid, and High dose groups respectively were n = 10, 10, 10, 10. Dose levels were 0, 83.8, 168, 335 mg/L respectively.

c: The p-values shown were calculated using a permutation null hypothesis testing method and have been adjusted for multiple comparisons using a Hommel correction within each stage.

d: Significance is based on the adjusted p-value with a significance level of α = 0.05.

e: A positive number indicates the estimated stage length in the treated group is longer than in the control group.

Markov model estimates of stage length and 95% confidence intervals

	Control (0 mg/L)		Low dose (83.8 mg/L)		Mid dose (168 mg/L)		High dose (335 mg/L)	
	Stage Length (days)	95% CI	Stage Length (days)	95% CI	Stage Length (days)	95% CI	Stage Length (days)	95% CI
Diestrus	2.0	(1.6, 2.4)	1.9	(1.5, 2.5)	1.8	(1.5, 2.1)	2.1	(1.5, 2.8)
Proestrus[a]	0.2	--	0.2	--	0.2	--	0.2	--
Estrus	1.6	(1.4, 1.9)	1.3	(1.1, 1.6)	1.2	(1.1, 1.4)	1.2	(1.1, 1.3)
Metestrus	0.5	(0.3, 0.6)	0.3	(0.1, 0.5)	0.2	(0.1, 0.3)	0.5	(0.3, 0.7)

a: Due to a very low number of observations of proestrus, stage lengths were estimated using a profile likelihood approach. As a result, confidence intervals are not available for the proestrus stage length estimate.
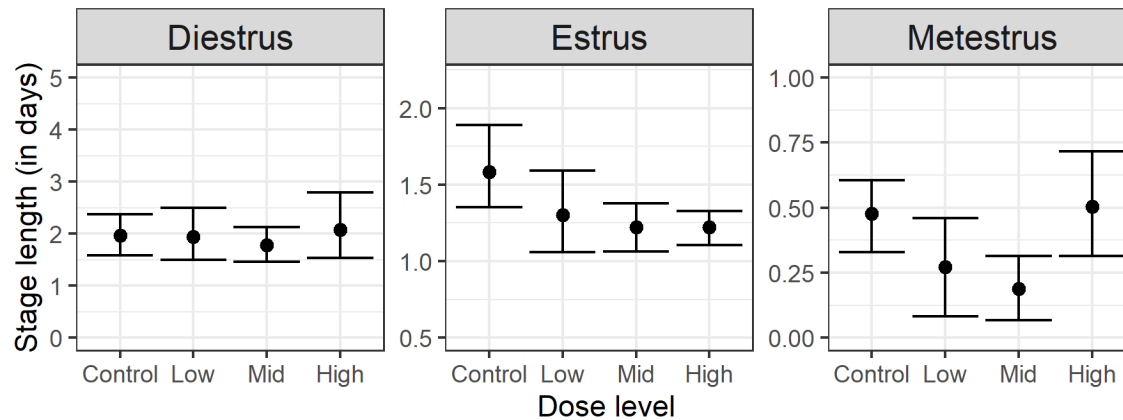
Estimates of stage length shown as dots, with bars indicating 95% confidence intervals. Estimates for lengths of proestrus are not shown here due to very low numbers of observations of this stage.