

Analysis of variance. One-way ANOVA.

Investigated experimental factor: Pb Concentration
Factors name: Control; 0.5 mg/L; 1.0 mg/L; 1.5 mg/L;
Investigated experimental response: Dry biomass

* - The components of observed variance:

	df	type I SS	mean square	F value	p>F
treatments	3	168.7054	56.2351	84.2336	<0.001
Residuals	24	16.0226	0.6676	-	-

* - Distribution of variables in variance classes:

	treatment	mean	sd	sem	tukey	snk	duncan	NA.	scott_knott
1	Control	22.8857	1.3656	0.3088	a	a	a	a	a
2	0.5 mg/L	19.7486	0.7302	0.3088	b	b	b	b	b
3	1.0 mg/L	17.3786	0.3696	0.3088	c	c	c	c	c
4	1.5 mg/L	16.5714	0.3686	0.3088	c	c	c	c	c

* - The raw multiple comparisons test:

	pair	contrast	p(tukey)	p(snk)	p(duncan)	NA
1	Control - 0.5 mg/L	3.1371	0.0000	0.0000	0.0000	0.0000
2	Control - 1.0 mg/L	5.5071	0.0000	0.0000	0.0000	0.0000
3	Control - 1.5 mg/L	6.3143	0.0000	0.0000	0.0000	0.0000
4	0.5 mg/L - 1.0 mg/L	2.3700	0.0001	0.0000	0.0000	0.0000
5	0.5 mg/L - 1.5 mg/L	3.1772	0.0000	0.0000	0.0000	0.0000
6	1.0 mg/L - 1.5 mg/L	0.8072	0.2764	0.0769	0.0769	0.0769

* - Normality (Shapiro-Wilk) and homogeneity (Bartlett) tests applied to residuals:

	values
p.value Shapiro-Wilk test	0.3532
p.value Bartlett test	0.0040
coefficient of variation (%)	4.2700
first value most discrepant	7.0000
second value most discrepant	1.0000
third value most discrepant	10.0000

* - The estimated marginal means (EMMs) of factors values:

Concentration	emmean	SE	df	lower.CL	upper.CL
Control	22.9	0.309	24	22.2	23.5
0.5 mg/L	19.7	0.309	24	19.1	20.4
1.0 mg/L	17.4	0.309	24	16.7	18.0
1.5 mg/L	16.6	0.309	24	15.9	17.2

Confidence level used: 0.95

* - The contrasts between factors in terms of estimated marginal mMeans (EMMs):

contrast	estimate	SE	df	t.ratio	p.value
Control - (0.5 mg/L)	3.137	0.437	24	7.183	<.0001
Control - (1.0 mg/L)	5.507	0.437	24	12.610	<.0001
Control - (1.5 mg/L)	6.314	0.437	24	14.458	<.0001
(0.5 mg/L) - (1.0 mg/L)	2.370	0.437	24	5.427	<.0001
(0.5 mg/L) - (1.5 mg/L)	3.177	0.437	24	7.275	<.0001
(1.0 mg/L) - (1.5 mg/L)	0.807	0.437	24	1.848	0.0769

P value adjustment: fdr method for 6 tests

* - Calculated p values of pair factor contrasts:

	contrasts.vals	p.vals
Control - (0.5 mg/L)	3.1371429	3.016031e-07
Control - (1.0 mg/L)	5.5071429	1.335309e-11
Control - (1.5 mg/L)	6.3142857	1.448495e-12
(0.5 mg/L) - (1.0 mg/L)	2.3700000	1.700722e-05
(0.5 mg/L) - (1.5 mg/L)	3.1771429	3.016031e-07
(1.0 mg/L) - (1.5 mg/L)	0.8071429	7.694979e-02

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*   - Benjamini-Krieger-Yekutieli multiple-stages comparison procedure
*   and the decision to reject the null hypothesis of equal means.
      contrasts.vals      p.vals      BYK.pvals BYK.rejection
Control - (0.5 mg/L)      3.1371429 3.016031e-07 4.021377e-07      TRUE
Control - (1.0 mg/L)      5.5071429 1.335309e-11 3.338274e-11      TRUE
Control - (1.5 mg/L)      6.3142857 1.448495e-12 8.690971e-12      TRUE
(0.5 mg/L) - (1.0 mg/L)   2.3700000 1.700722e-05 6.803002e-06      TRUE
(0.5 mg/L) - (1.5 mg/L)   3.1771429 3.016031e-07 4.021377e-07      TRUE
(1.0 mg/L) - (1.5 mg/L)   0.8071429 7.694979e-02 1.389412e-02      TRUE

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