Analysis of variance. One-way ANOVA.

Investigated experimental factor: Cd Concentration
Factors name: Control; 0.5 mg/L; 1.0 mg/L; 1.5 mg/L;
Investigated experimental response: pH of culture medium

* - The components of observed variance:

	df	type I SS	mean square	F value	p>F
treatments	3	0.0915	0.0305	9.1297	<0.001
Residuals	24	0.0802	0.0033	-	-

* - Distribution of variables in variance classes:

	treatment	mean	sd	sem	tukey	snk	duncan	NA.	scott_knott
1	Control	9.36	0.0597	0.0218	a	a	a	a	a
2	0.5 mg/L	9.31	0.0896	0.0218	ab	ab	ab	ab	a
3	1.0 mg/L	9.25	0.0300	0.0218	bc	bc	bc	bc	b
4	1.5 mg/L	9.21	0.0294	0.0218	c	c	c	c	b

* - The raw multiple comparisons test:

	pair	contrast	p(tukey)	p(snk)	p(duncan)	NA
1	Control - 0.5 mg/L	0.05	0.3858	0.1179	0.1179	0.2358
2	Control - 1.0 mg/L	0.11	0.0079	0.0043	0.0021	0.0080
3	Control - 1.5 mg/L	0.15	0.0003	0.0003	0.0001	0.0006
4	0.5 mg/L - 1.0 mg/L	0.06	0.2362	0.0634	0.0634	0.1902
5	0.5 mg/L - 1.5 mg/L	0.10	0.0170	0.0093	0.0047	0.0140
6	1.0 mg/L - 1.5 mg/L	0.04	0.5734	0.2068	0.2068	0.2358

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

	values
p.value Shapiro-Wilk test	0.3655
p.value Bartlett test	0.0218
coefficient of variation (%)	0.6200
first value most discrepant	11.0000
second value most discrepant	7.0000
third value most discrepant	13.0000

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

Concentration	emmean	SE	df	lower.CL	upper.CL
Control	9.36	0.02185	24	9.315	9.405
0.5 mg/L	9.31	0.02185	24	9.265	9.355
1.0 mg/L	9.25	0.02185	24	9.205	9.295
1.5 mg/L	9.21	0.02185	24	9.165	9.255

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)	0.05	0.0309	24	1.618	0.1424
Control - (1.0 mg/L)	0.11	0.0309	24	3.560	0.0048
Control - (1.5 mg/L)	0.15	0.0309	24	4.854	0.0004
(0.5 mg/L) - (1.0 mg/L)	0.06	0.0309	24	1.942	0.0960
(0.5 mg/L) - (1.5 mg/L)	0.10	0.0309	24	3.236	0.0070
(1.0 mg/L) - (1.5 mg/L)	0.04	0.0309	24	1.295	0.2078

P value adjustment: fdr method for 6 tests

* - Calculated p values of pair factor contrasts:

	contrasts.vals	p.vals
Control - (0.5 mg/L)	0.05	0.1424352913
Control - (1.0 mg/L)	0.11	0.0047639817
Control - (1.5 mg/L)	0.15	0.0003607776
(0.5 mg/L) - (1.0 mg/L)	0.06	0.0959834550
(0.5 mg/L) - (1.5 mg/L)	0.10	0.0070337479
(1.0 mg/L) - (1.5 mg/L)	0.04	0.2077993438

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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)              0.05 0.1424352913 0.079630834        FALSE
Control - (1.0 mg/L)              0.11 0.0047639817 0.011966965         TRUE
Control - (1.5 mg/L)              0.15 0.0003607776 0.002165447         TRUE
(0.5 mg/L) - (1.0 mg/L)           0.06 0.0959834550 0.079630834        FALSE
(0.5 mg/L) - (1.5 mg/L)           0.10 0.0070337479 0.011966965         TRUE
(1.0 mg/L) - (1.5 mg/L)           0.04 0.2077993438 0.079630834        FALSE
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