Analysis of variance. One-way ANOVA.

Investigated experimental factor: The type of cation
Factors name: Ni; Cd; Pb;
Investigated experimental response: Optical density

* - The components of observed variance:

	df	type I SS	mean square	F value	p>F
treatments	2	0.2132	0.1066	18.2698	<0.001
Residuals	18	0.1050	0.0058	-	-

* - Distribution of variables in variance classes:

	treatment	mean	sd	sem	tukey	snk	duncan	NA.	scott_knott
1	Pb	0.3814	0.0788	0.0289	a	a	a	a	a
2	Cd	0.3800	0.0800	0.0289	a	a	a	a	a
3	Ni	0.1670	0.0699	0.0289	b	b	b	b	b

* - The raw multiple comparisons test:

	pair	contrast	p(tukey)	p(snk)	p(duncan)	NA
1	Pb - Cd	0.0014	0.9994	0.9731	0.9731	0.9731
2	Pb - Ni	0.2144	0.0002	0.0002	0.0001	0.0003
3	Cd - Ni	0.2130	0.0002	0.0001	0.0001	0.0003

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

	values
p.value Shapiro-Wilk test	0.0204
p.value Bartlett test	0.9423
coefficient of variation (%)	24.6800
first value most discrepant	12.0000
second value most discrepant	19.0000
third value most discrepant	21.0000

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

Concentration	emmean	SE	df	lower.CL	upper.CL
Ni	0.167	0.0289	18	0.106	0.228
Cd	0.380	0.0289	18	0.319	0.441
Pb	0.381	0.0289	18	0.321	0.442

Confidence level used: 0.95

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

contrast	estimate	SE	df	t.ratio	p.value
Ni - Cd	-0.21300	0.0408	18	-5.217	0.0001
Ni - Pb	-0.21443	0.0408	18	-5.252	0.0001
Cd - Pb	-0.00143	0.0408	18	-0.035	0.9725

P value adjustment: fdr method for 3 tests

*   - Calculated p values of pair factor contrasts:

	contrasts.vals	p.vals
Ni - Cd	-0.213000000	8.720831e-05
Ni - Pb	-0.214428571	8.720831e-05
Cd - Pb	-0.001428571	9.724709e-01

*   - 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
Ni - Cd	-0.213000000	8.720831e-05	0.0002616477	TRUE
Ni - Pb	-0.214428571	8.720831e-05	0.0002616477	TRUE
Cd - Pb	-0.001428571	9.724709e-01	1.0000000000	FALSE