Anova table for pH

Analysis of variance					
Source	Sum Sq	D.F	Mean Sq	F	Prob>F
Dye-Type	0.8533	4	0.21332	5.61	0.0013
Dose	20.9644	3	6.98814	183.82	0
Cons	0.1099	2	0.05495	1.45	0.249
Error	1.3686	36	0.03802		
Total	23.5875	45			
Constrained (Type-III) sums of squares					

Anova table for IAU

Analysis of variance					
Source	Sum Sq	D.F	Mean Sq	F	Prob>F
#Dye-Type	195.7	3	65.24	2.05	0.2262
#Dose	4509.7	1	4509.73	141.4	0.0001
#Cons	0	0	0	0	NaN
#Dye-Type* Dose	76.1	7	10.87	0.34	0.9036
#Dye-Type*Cons	105.7	7	15.11	0.47	0.8213
#Dose*Cons	1689.3	2	844.66	26.48	0.0022
Error	159.5	5	31.89		
Total	11953	29			
Constrained (Type-III) sums of squares. Terms marked with #are not full rank					

Anova table for ADMI

Analysis of variance					
Source	Sum Sq	D.F	Mean Sq	F	Prob>F
#Dye-Type	859.07	3	286.36	7.18	0.0292
#Dose	2136.38	1	2136.38	53.56	0.0007
#Cons	0	0	0	0	NaN
#Dye-Type* Dose	202.28	7	28.9	0.72	0.6638
#Dye-Type*Cons	432.93	7	61.85	1.55	0.3252
#Dose*Cons	824.4	2	412.2	10.33	0.0167
Error	199.44	5	39.89		
Total	8731.71	29			

Constrained (Type-III) sums of squares. Terms marked with #are not full rank

In order to plot max R^2 that satisfies null hypothesis against value of parameter a in equation y/x = a, (Figure 2 of manuscript) the following steps should be performed:

1. Specify parameter *a* and the number of data points (here Data No=50, 100 or 150).
2. Generate x data (here using x=linspace (0, 2000, Data No); in MATLAB)
3. Assume R^2=1.
4. Generate random y^{new} similar to y=ax with $[R^2(y^{new},x) - R^2]$ <epsilon (here 0.01).
5. If paired comparison of y^{new} and x rejects null hypothesis (here h=ttest (y^{new}, x) = 1) then R^2-limit(a)= $R^2(y^{new},x)$ else $R^2=R^2 - 0.01$ and go to step 4.

This algorithm produces repeatable results independent of the selected random y^{new}.