

Statistical Ecology
Stat 555

Planned Comparisons

MTB > Oneway 'Length' 'Treatment'.

One-way ANOVA: Length versus Treatment

Analysis of Variance for Length

Source	DF	SS	MS	F	P
Treatmen	4	1043.54	260.88	42.04	0.000
Error	45	279.28	6.21		
Total	49	1322.82			

Individual 95% CIs For Mean
Based on Pooled StDev

Level	N	Mean	StDev	CI	
2%fructo	9	58.222	1.986	(--*--)	
2%glucos	10	59.300	1.636	(---*--)	
2%sucros	11	63.545	2.505		(--*--)
Control	10	70.100	3.985		(---*--)
gluc/fru	10	58.000	1.414	(--*--)	

Pooled StDev = 2.491

60.0 65.0 70.0

MTB > ANOVA 'Length' = Treatment.

ANOVA: Length versus Treatment

$$H_0: A_C = A_G = A_F = A_{GF} = A_S$$

Factor	Type	Levels	Values
Treatment	fixed	5	2F, 2G, 2S, C, GF

Analysis of Variance for Length

Source	DF	SS	MS	F	P
Treatment	4	1077.32	269.33	49.37	0.000
Error	45	245.50	5.46		
Total	49	1322.82			

S = 2.33571 R-Sq = 81.44% R-Sq(adj) = 79.79%

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MTB > GLM 'Length' = Control 'Mixed/Pure' Pure;
SUBC> Brief 2 .
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General Linear Model: Length versus Control, Mixed/Pure, Pure

Factor	Type	Levels	Values
Control	fixed	2	-1, 4
Mixed/Pure	fixed	3	-1, 0, 3
Pure	fixed	3	-1, 0, 1

Analysis of Variance for Length, using Adjusted SS for Tests

Source	Model DF	Reduced DF	Seq SS
Control	1	1	832.32
Mixed/Pure	2	1+	48.13
Pure	2	2	196.87
Error	44	45	245.50
Total	49	49	1322.82

+ Rank deficiency due to empty cells, unbalanced nesting, collinearity, or an undeclared covariate. No storage of results or further analysis will be done.

S = 2.33571 R-Sq = 81.44% R-Sq(adj) = 79.79%

$H_{01}: A_C = (A_G + A_F + A_{GF} + A_S) / 4$ Control vs. Sugars
 $H_{02}: A_{GF} = (A_G + A_F + A_S) / 3$ Mixed vs. Pure sugars
 $H_{03}: A_G = A_F = A_S$ Among Pure sugars

Complete ANOVA Table:

Source	DF	SS	MS	F
Treatments	4	1077.32	269.33	49.3**
Control vs. Sugars	1	832.32	832.32	152.4**
Mixed vs. Pure	1	48.13	48.13	8.82**
Among sugars	2	196.87	98.43	18.1**
Within	45	245.50	5.46	
Total	49	1322.82		

** P < 0.01

Length	Treatment	Control	Mixed/Pure	Pure
75	C	4	0	0
67	C	4	0	0
70	C	4	0	0
75	C	4	0	0
65	C	4	0	0
71	C	4	0	0
67	C	4	0	0
67	C	4	0	0
76	C	4	0	0
68	C	4	0	0
57	2G	-1	-1	-1
58	2G	-1	-1	-1
60	2G	-1	-1	-1
59	2G	-1	-1	-1
62	2G	-1	-1	-1
60	2G	-1	-1	-1
60	2G	-1	-1	-1
57	2G	-1	-1	-1
59	2G	-1	-1	-1
61	2G	-1	-1	-1
58	2F	-1	-1	-1
61	2F	-1	-1	-1
56	2F	-1	-1	-1
58	2F	-1	-1	-1
57	2F	-1	-1	-1
56	2F	-1	-1	-1
61	2F	-1	-1	-1
60	2F	-1	-1	-1
57	2F	-1	-1	-1
58	2F	-1	-1	-1
58	GF	-1	3	0
59	GF	-1	3	0
58	GF	-1	3	0
61	GF	-1	3	0
57	GF	-1	3	0
56	GF	-1	3	0
58	GF	-1	3	0
57	GF	-1	3	0
57	GF	-1	3	0
59	GF	-1	3	0
62	2S	-1	-1	2
66	2S	-1	-1	2
65	2S	-1	-1	2
63	2S	-1	-1	2
64	2S	-1	-1	2
62	2S	-1	-1	2
65	2S	-1	-1	2
65	2S	-1	-1	2
62	2S	-1	-1	2
67	2S	-1	-1	2