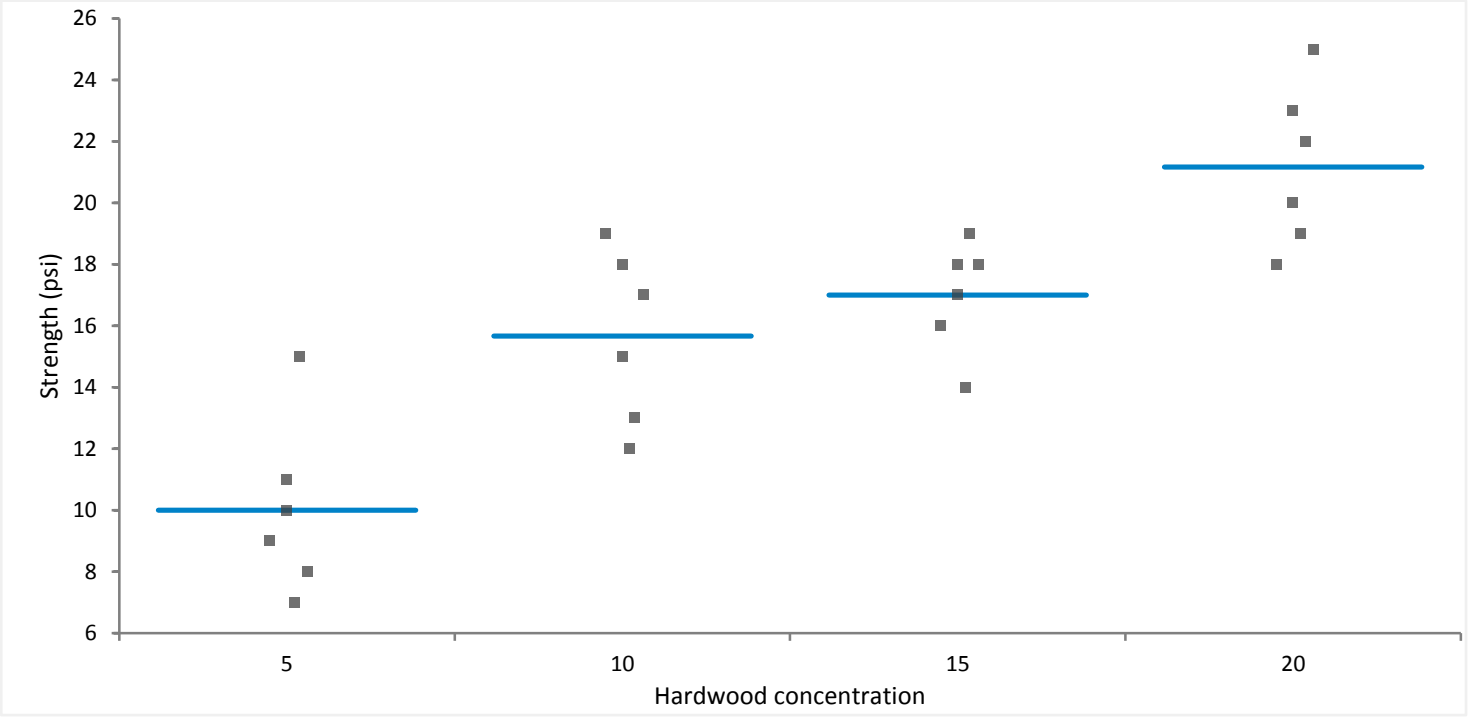
Compare Groups: Strength by Hardwood concentration

Analyse-it v4.80.1

Tensile strength of paper (Montgomery 2001)

Last updated 8 February 2017 at 10:26 by Analyse-it Software, Ltd.

Descriptives



N	24

Strength (psi) by Hardwood concentration	N	Mean	95% CI*	Mean SE*	SD
5	6	10.0	7.8 to 12.2	1.04	2.8
10	6	15.7	13.5 to 17.8	1.04	2.8
15	6	17.0	14.8 to 19.2	1.04	1.8
20	6	21.2	19.0 to 23.3	1.04	2.6
Pooled	24				2.6

* Standard error of the mean based on the pooled sample variance.

Location

ANOVA

Source	SS	DF	MS	F	p-value
Hardwood concentration	382.8	3	127.6	19.61	<0.0001 [1]
Error	130.2	20	6.5		
Total	513.0	23	22.3		

H0: $\mu_1 = \mu_2 = \mu...$

The mean of the populations are all equal.

H1: $\mu_i \neq \mu_j$ for at least one i,j

The mean of the populations are not all equal.

[1] Reject the null hypothesis in favour of the alternative hypothesis at the 5% significance level.

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Multiple Comparisions

Tukey-Kramer all pairs comparisons

Contrast	Mean difference	Simultaneous 95% CI	SE	0	p-value
5 - 10	-5.7	-9.8 to -1.5	1.47		0.0051 [1]
5 - 15	-7.0	-11.1 to -2.9	1.47		0.0007 [1]
5 - 20	-11.2	-15.3 to -7.0	1.47		<0.0001 [1]
10 - 15	-1.3	-5.5 to 2.8	1.47		0.8022 [2]
10 - 20	-5.5	-9.6 to -1.4	1.47		0.0066 [1]
15 - 20	-4.2	-8.3 to -0.0	1.47		0.0470 [1]

H0: θ = 0

The difference between the means of the populations is equal to 0.

H1: θ ≠ 0

The difference between the means of the populations is not equal to 0.

[1] Reject the null hypothesis in favour of the alternative hypothesis at the 5% significance level.

[2] Do not reject the null hypothesis at the 5% significance level.