Instructions for carrying out statistical procedures and tests using Minitab

These instructions are closely linked to the author's book:

Essential Statistics for the Pharmaceutical Sciences
John Wiley & Sons Ltd http://eu.wiley.com
2007
ISBN: 978-0-470-03468-2

For all references to chapters or tables, see the above book.

Using Minitab to obtain the 95% confidence interval for the mean after log transformation

Using Minitab to obtain the 95% confidence interval for the mean after log-transformation

Example: Table 5.4 Pesticide residues in 20 crops of foxglove leaves (ng per g of leaf).

Label the first column as 'Conc' and enter the pesticide concentrations.

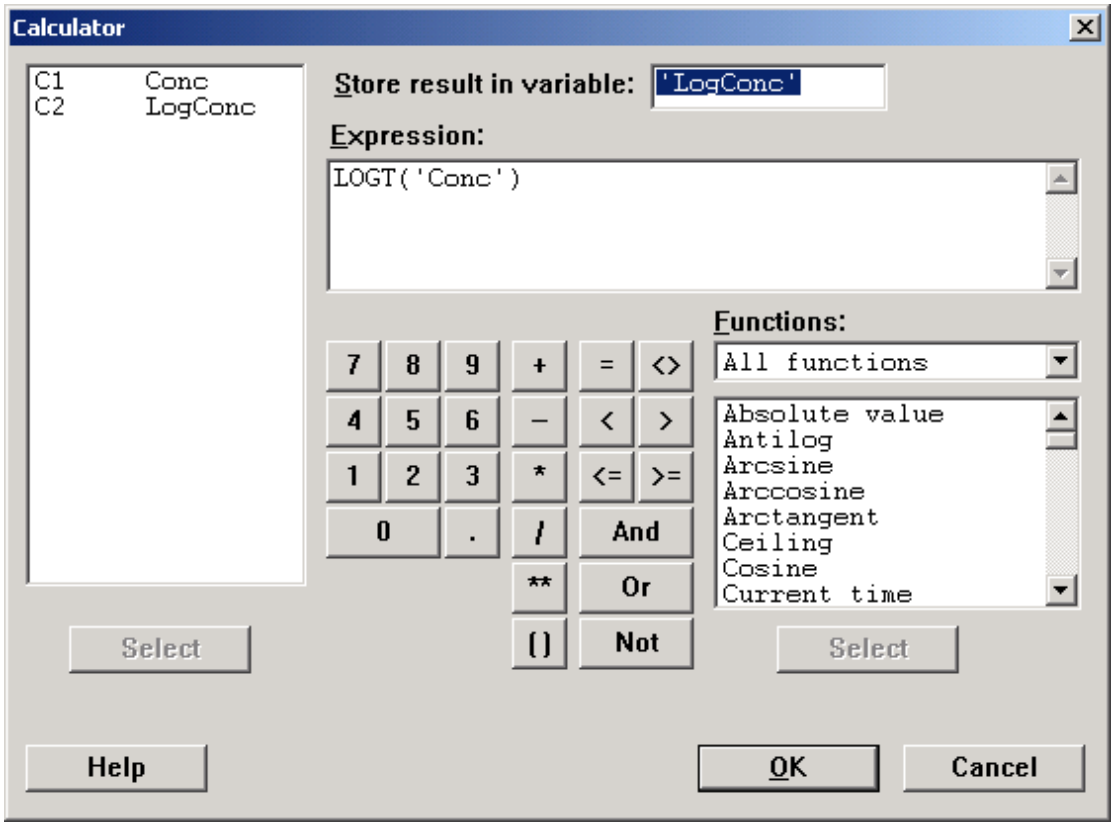
Stage 1: Obtain the logs of the concentrations

Label column 2 as 'LogConc'

Follow the menus: *Calc / Calculator*

Click in the box labelled 'Store result in variable:' and then, in the left hand box, double click on 'C2 LogConc'. 'LogConc' should appear in the right hand box.

Click in box labelled 'Expression:'. In the list labelled 'Functions', scroll down to 'Log 10' and double click on that entry. 'LogT(number)' should appear in the Expression box, with 'number' highlighted. In the left hand box, click on 'Conc' and the Expression box should change to LogT('Conc'). The Calculator should now appear as below:



Clicking OK will cause the logs of the concentrations to appear in column 2 of the worksheet.

Stage 2: Obtain the 95% CI for the mean of the logs of the concentrations.

This is now performed exactly as for the normal 95% CI, but you select the log transformed values.

Follow the menus *Stat / Basic Statistics / 1-Sample t …*

With the cursor in the 'Samples in columns' box, double click 'C2 LogConc'.

The output will be:

One-Sample T: LogConc

Variable	N	Mean	StDev	SE Mean	95% CI
LogConc	20	1.14087	0.89170	0.19939	(0.72354, 1.55820)

Remember that the mean and the confidence limits are still in log form and you will need to take their anti-logs to get the geometric mean and a confidence interval. (See Section 5.10.3 for details).