

## *Determination of LODs (limits of detection) and LOQs (limit of quantification)*

LOD's may also be calculated based on the standard deviation of the response ( $S_y$ ) of the curve and the slope of the calibration curve ( $S$ ) at levels approximating the LOD according to the formula:  $LOD = 3.3(S_y/S)$ . The standard deviation of the response can be determined based on the standard deviation of y-intercepts of regression lines. *Note: the slope and S can be obtained with one order of magnitude of calibration curve.*

The calculation method is again based on the standard deviation of the response (SD) and the slope of the calibration curve ( $S$ ) according to the formula:  $LOQ = 10(S_y/S)$ . Again, the standard deviation of the response can be determined based on the standard deviation of y-intercepts of regression lines.

The values of  $S_y$  and slope can be obtained from the LINEST function (Shown in the next figure), when creating calibration curve in the MS Excel. The  $S_y$  of y is the standard deviation used for LOD and LOQ calculation. Another way to obtain  $S$  and  $S_y$  values slope is to use in MS Excel "SLOPE" and STEYX functions.

*If you are not familiar with detailed use of the LINEST function, follow the document calibration curve.pdf*

