

Electric Skin Project – Protein Quantification by BCA Assay

Objective

Quantify total protein concentration of two samples (A and B) using the BCA colorimetric assay in a microplate reader at 562 nm.

Method summary

Bovine serum albumin (BSA) standards at 0.5, 5, 10, 20, and 30 µg/mL were used to generate a standard curve. Triplicate blanks were averaged and subtracted from all readings. A linear regression (net absorbance versus concentration) was fitted to standards and used to back-calculate sample concentrations. For accuracy, we used dilutions whose net absorbance fell within a mid-range window (~0.2–0.8) for estimation.

Standard curve (after blank subtraction)

Concentration (µg/mL)	Net Absorbance
0.5	0.106
5.0	0.163
10.0	0.256
20.0	0.320
30.0	0.427

Results

Sample A estimated concentration: **1328.65 µg/mL** (\approx 1.33 mg/mL).

Sample B estimated concentration: **323.18 µg/mL** (\approx 0.32 mg/mL).

Selected dilutions used for estimation

A DF	Mean OD	Net OD	Back-calculated (µg/mL)	Original conc (µg/mL)
32	0.720	0.583	44.3	1416.7
64	0.504	0.368	23.9	1528.2
128	0.339	0.202	8.1	1041.0

B DF	Mean OD	Net OD	Back-calculated (µg/mL)	Original conc (µg/mL)
4	0.887	0.751	60.2	240.8
8	0.659	0.523	38.6	308.7
16	0.535	0.399	26.8	428.4

32	0.356	0.220	9.8	314.9
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Standard curve and selected points

