assays: protein

Biuret Assay

The biuret assay, which is based on Cu^{+2} interaction with protein, eliminates the problem of UV absorption variability. This reaction is dependent in part on peptide bonds and not solely on amino acid moieties.

In the biuret protein assay procedure, copper sulfate dissolved in alkaline solution is added to a protein mixture. The copper ions form tetradentate complexes with opposite pairs of peptide bonded nitrogens. These complexes produce a blue color that can be measured at 550 nm.[1]

The biuret assay is simple and gives a linear correlation between protein concentration and absorbance; however, it lacks sensitivity.[2] In addition, the biuret demonstrates less protein-to-protein variability than UV absorbance, and it requires the use of relatively large sample sizes. Because large amounts of material are not always available, the Lowry assay, which uses the Folin reagent to increase sensitivity, was developed.[3]

References

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2. Ohnishi, S.T. and Barr, J.K. (1978). A simplified method of quantitating protein using the biuret and phenol reagent. *Anal. Biochem.* **86**, 193-200.
3. Lowry, O.H., Rosebrough, N.J., Farr, A.L. and Randall, R.J. (1951). Protein measurement with the Folin phenol reagent. *J. Biol. Chem.* **193**, 265-275.