

Total Protein

Total protein was performed on a Hitachi Model 737 multichannel analyzer (Roche Diagnostics, Indianapolis, IN).

In alkaline solution, a colored chelate forms between cupric ions and compounds containing at least two $-\text{CONH}_2$, $-\text{CSNH}_2$, $-\text{CH}_2\text{NH}_2$ or similar groups, joined directly or through a carbon or nitrogen atom. In proteins, the chelate is formed between one cupric ion and about six nearby peptide bonds. The intensity of the color is proportional to the total number of peptide bonds undergoing reaction and thus to the total amount of protein present. This is similar to the biuret reaction. Although compounds undergoing the biuret reaction give colors ranging from pink to purple, the violet colors given by serum albumins and globulins are essentially the same. Peptides of low molecular weight are present in serum, but their concentration is too low to cause interference.

-from *Laboratory Procedures Used for the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994*
Elaine W. Gunter, Brenda G. Lewis, and Sharon M. Koncikowski, 1996