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152. EFFECT OF TRICHLOROACETIC ACID CONCENTRATION IN STANDARD SOLUTION FOR FLUOROMETRIC DETERMINATION OF PLASMA PHENYLALANINE

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Phenylalanine (Phe) in blood is most frequently determined by the fluorometric method of McCaman and Robins, which measures a fluorescent compound produced when ninhydrin reacts with Phe. In this method, plasma proteins are precipated by equal volumn of 0.6N trichloroacetic acid (TCA). After acid-base titration by 0.1N NaOH, however, we found that the TCA concentration of the deproteined supernatant was 0.23N instead of 0.3N by 1/1 dilution. The concentration of TCA had a quenching effect on the fluorescence produced by the Phe. The plasma Phe calculated from standards in 0.3N TCA were about 15% higher than that calcuated from standards in 0.23N TCA. Although, the correlations between Phe measured by fluorometric method and amino acids analyzer were very good for both Phe based on 0.23N and 0.3N TCA standard solutions ($r=0.996$ & 0.973, respectively). Phe based on 0.23N TCA standard solution was closer to the reference method (slop $\cong 1$). Therefore, we recommend using 0.23N TCA in Phe standard solution for fluorometric method instead of 0.3N TCA used in McCaman and Robins' method and in the selected methods of American Association for Clinical Chemistry, which are most frequently used in the clinical biochemistry laboratory. The reference ranges of plasma Phe based on 0.23N TCA solution measured by fluorometric method were 0.16-1.50mg/dl ($n=191$) for adults and 0.11-2.12mg/dl ($n=130$) for children.

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