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**Measurement of Ferritin Levels:
Comparison of a commercial IRMA to an in-house
ELISA Method**

Diplomarbeit

vorgelegt von

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5. Summary

The advent of enzyme-linked immunosorbent assays has made possible the measurement of minute concentrations of clinically valuable components with the same ease and accuracy as that obtainable before only by IRMA and RIA methods. The main advantages of ELISA over IRMA and RIA are that the reagents are much more stable and considerably less costly, and that the equipment used is simpler, cheaper and usually already available in most laboratories.

The objective of this dissertation was to run the ELISA technique described by DAKO for the determination of ferritin in human serum or plasma. Because IRMA methods are considered to be very sensitive and results of these assays are widely accepted, the ferritin levels of 378 school children were determined in parallel with a commercial IRMA kit (Becton Dickinson and Co, Orangeburg, NY) and the ELISA. For organizing reasons plasma was used for the ELISA whereas serum was used for the IRMA. Regression analysis of the pairs of values, taking the IRMA reading as the independent variable, yielded a coefficient of variation $r = 0,86$ (Spearman, two-tailed) and the straight line $y = 0,99x + 3,13$.

The ELISA technique described here was found to have good accuracy and the speed and ease with which it may be carried out makes it suitable for a large number of samples. The entire assay can be performed in 5 hours, with good precision. Although several IRMA and RIA kits are available for the quantitation of serum ferritin the costs of these assays are prohibitive because of factors such as the need for properly equipped and licensed laboratories, automated gamma counters and facilities for the disposal of the radioactive waste. Examination of ELISA showed that it was potentially a much cheaper technique, yet one which could be as sensitive, accurate and easy to perform as IRMA methods. The relative cheapness of the enzyme label is perhaps a far more important consideration, especially in developing countries.