A Comparison of Measurements of Lithium Concentrations Using Flame Photometry and Atomic Absorption Spectrophotometry

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This is to certify that the thesis entitled "A Comparison of Measurements of Lithium Concentrations Using Flame Photometry and Atomic Abosrption Spectrophotometry" has been accepted in partial fulfillment of the requirements for the M.S. Degree for Patricia L. Villescas.

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ABSTRACT

A COMPARISON OF MEASUREMENTS OF LITHIUM CONCENTRATIONS
USING FLAME PHOTOMETRY AND ATOMIC ABSORPTION SPECTROPHOTOMETRY

BY

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Lithium determinations were compared in relation to precision, accuracy, and convenience on three different instruments: the atomic absorption spectrophotometer, the flame photometer using potassium as the internal standard, and the flame photometer using cesium as the internal standard. Linearity studies showed that all instruments were linear from 0.5 to 3.0 mmol lithium per liter. Precision studies demonstrated that the atomic absorption spectrophotometer was less precise than either of the flame photometers. Sera from thirty patients receiving lithium therapy were analyzed on all instruments; no significant differences in results were found. Recovery studies and comparison with assayed control substances showed that there were no differences in accuracy among the three instruments. I found the flame photometer using cesium as the internal standard to be the most convenient to use.

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