

INTRODUCTION

The use of the flame photometer in the analysis of soil extracts has increased greatly during the past few years and this increased popularity provides proof of the advantage over the more orthodox analytical procedure.

Analyses can be much more rapidly made with this instrument than by the usual volumetric and gravimetric methods. This point is of special appeal to soil workers, particularly where, as in most soil laboratories, large numbers of routine analyses are done. The accuracy of the results compare very favourable with those obtained by the more superior chemical procedures (refs:10,21,31,32,33) and because of the direct procedure results can be produced promptly. With the chemical methods involving as many do, repeated filtrations and evaporations it often takes hours to produce one result. Another factor of importance in flame photometry is the economical use of material. As little as two millilitres of extract is ample for a determination.

While both time and material may be saved, the operator still has a great responsibility. The fact that the source of light is a moving flame, and that the reaction is an active one, capable of varying from moment to moment, must be kept constantly in mind.

When several elements are sprayed into the flame, each gives rise to its characteristic flame spectrum, and it is possible, by the use of appropriate filters, to determine the concentration of each element in the flame. For the determination of sodium the yellow doublet 5890 Angstrom units is chosen, for calcium the red line 8500 units, for potassium the dark red 7664 units, and for magnesium the wavelength 5330 units.