

COMPARATIVE STUDY OF CLAY MEASUREMENT BY VARIOUS METHODS

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ABSTRACT

The study was carried out on two soil profiles i.e., Lyallpur (Typic Camborthids) and Khurrianwala soil series (Natric Camborthids). Routine physical and chemical characterisation classified the Lyallpur Soil Series to be normal and Khurrianwala as saline-sodic. Clay was measured by three methods i.e., Bouyoucos, Day's and Pipette. Clay measurement by Pipette method was considered as standard, and the values of clay measured by other two methods were compared. Comparison reveals an overall overestimation of clay as 3.6% by Day's method and 29% by the Bouyoucos method. In the individual soil series the overestimation is 1.7% (Day's method) and 21% (Bouyoucos method) in Lyallpur soil series and 6.7% (Day's Method) and 42% (Bouyoucos method) in the Khurrianwala soil series. Considering the above finding it is recommended that Day's method of particle-size analysis should be used in other similar arid-zone soils of low organic matter.

INTRODUCTION

Soil texture is a fundamental property in the sense that it performs an important role in water holding capacity, permeability, infiltration rate, nutrient availability, etc.

tion measurement in order to elucidate any major differences in their values in our local soils.

MATERIALS AND METHODS

Two profiles were selected for the present investigations. The profiles have been mapped by the Soil Survey of Pakistan as the Lyallpur soil series (normal) and the other as the Khurrianwala soil series (dense saline-sodic). Both the soil series belong to the Pleistocene age and developed on mixed calcareous silty alluvium (Brinkman and Rafiq, 1971). Each profile was sampled from a pit of about 1.5 metres square by approximately 2 metres deep. The profiles were divided into various horizons and disturbed samples were obtained from 0-5, 5-10, 25-30, 45-50, 65-70 and 125-130 cm depths. These were collected for routine laboratory analysis following air-drying and sieving (< 2mm).

Physical and chemical measurements were carried out