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APPLICABILITY OF COLORIMETRIC ORGANIC MATTER DETERMINATION AND ITS RELATIONSHIP WITH TOTAL SOIL NITROGEN FOR SELECTED SOILS IN SRI LANKA

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Soil Organic matter determination using Colorimetric determination is a simple and less time consuming method which has not been tested for Sri Lankan soils yet. Soil Organic matter determination using Walkey and Black method (Volumetric determination) is a very common method. It is more laborious, time and chemical consuming. Relationship between soil Nitrogen level and colorimetric soil organic matter content is also useful to predict soil Nitrogen level. The objectives of this study were to investigate the applicability of colorimetric determination of soil organic matter to Sri Lankan soils and to investigate the relationship between soil Nitrogen and soil organic matter.

Fourteen soils, varying in C content, were collected from agricultural fields at 0-30 cm depth differing in physico-chemical and other characteristics. In colorimetric method, 1 g soil samples were placed in 100 ml volumetric flasks followed by the addition of 10 ml of 1/6 N $K_2Cr_2O_7$ and 20 ml of concentrated H_2S0_4. The samples were mixed by swirling the flask and then and allowed to stand on a pad for 30 minutes in a fume cupboard. After bringing to a volume of 100 ml, the mixture was filtered and analyzed for light absorption at 600 nm using spectrophotometer. Colorimetric organic matter values showed strong correlation with organic matter determined by volumetric (Walkey and Black, 1934) method (r=0.95). Organic matter determined from both methods showed no significant difference. Colorimetric method organic matter values showed strong correlation with total Nitrogen (r=0.75). It is confirmed that colorimetric method can be used effectively and reliably to determine soil organic matter in Sri Lankan soils and total Nitrogen in soil can also be predicted.