

**Research note :**

**Performance evaluation of different extractants for the estimation of available sulphur in major soils of Tamil Nadu**

C. BHARATHI AND M. SANGEETHA

**Key Words :** Estimation, Sulphur, Extract, Soil.

In the recent past sulphur deficiency has been noticed in different soils and crops due to increased use of S free fertilizers and intensive cultivation, with high yielding varieties, which remove large quantities of nutrients (Padmaja *et al.*, 1993). In order to determine the available S status, different extractants are being used by different workers (Bapat *et al.*, 1997 and Athokpam *et al.*, 2004). Therefore the present investigation was planned to select the most promising extractant which may predict the available S status in major soils of Tamil Nadu.

Fifteen soil samples representing major soil groups in Tamil Nadu were collected and processed for soil physical and chemical analysis. pH, EC, organic carbon, available nutrients and CEC were estimated using standard procedures. The available S was

extracted by using different extractants viz., N HCl, N.N NH<sub>4</sub>OAC, 0.15% CaCl<sub>2</sub>, Morgan's reagent and H<sub>2</sub>O and available S was determined by turbidimetric method. Black gram variety Co.3 was raised as a test crop in these soils and the grain and stover yields were recorded. The S uptake in grain and stover yields was recorded. The S uptake in grain and stover was worked out by multiplying the total S in grain and straw with that of dry matter production. Correlations were worked out with different extractants with test crop parameters to find out the suitability of the extractants.

The important chemical properties of the soil with the locations are furnished in the Table 1. The pH of the soil varied between 0.26 and 1.72 and EC 0.13 and 0.55 dS m<sup>-1</sup>. The CEC ranged between 9.9 and 39 C.mol (P+) kg<sup>-1</sup> in the different soil samples. The study revealed that among the six extractants, 0.15% CaCl<sub>2</sub> was closely correlated with grain yield

See end of the article for authors' affiliations

Correspondence to :  
**C. BHARATHI**  
Department of Soil Science and Agricultural Chemistry, Tamil Nadu Agricultural University, COIMBATORE (T.N.) INDIA

Accepted : March, 2008

**Table 1 : Physico-chemical properties of initial soils.**

Sr. No	Locations	Subgroup	EC (dS m <sup>-1</sup> )	pH	OC (%)	Av. N (ppm)	Av. P (ppm)	Av. K (ppm)	CEC (c.mol (P+) kg <sup>-1</sup> )
1.	Dharapuram	Typic Ustropept	0.20	8.2	0.30	69	6.2	115	29.7
2.	Coimbatore	Typic Chromustert	0.29	8.3	0.45	110	8.3	160	28.9
3.	Virunchipuram	Typic Haplustalf	0.28	7.0	0.27	70	6.6	100	9.9
4.	Usilampatti	Typic Haplustalf	0.55	7.2	0.35	68	7.4	118	20.6
5.	Bhavanisagar	Typic Haplustalf	0.29	7.8	0.26	70	7.0	126	24.0
6.	Palani	Paralithic Ustropept	0.30	7.4	0.36	90	10.9	195	16.6
7.	Aruppukottai	Typic pellustert	0.31	8.3	0.47	112	6.4	495	33.9
8.	Manaparai	Paralithic Ustropept	0.28	7.5	0.35	92	5.4	136	15.8
9.	Ooty	Typic Ustropept	0.13	5.4	1.72	200	4.8	562	39.0
10.	Vadavalli	Udic Haplustalf	0.26	7.2	0.27	72	7.9	180	20.5
11.	Salem	Udic Rhodustalf	0.20	6.9	0.28	81	8.1	69	10.9
12.	Periyakulam	Typic Ustropept	0.60	7.6	0.35	106	7.4	99	14.9
13.	Tiruchi	Typic Ustifluent	0.38	6.8	0.52	110	11.4	340	26.5
14.	Noyal	Typic Ustifluent	0.30	8.0	0.86	119	10.8	400	24.0
15.	Dharmapuri	Paralithic Ustropept	0.34	6.9	0.42	95	4.4	96	28.9