Delineation of sulphur deficiency in soils of Thondamuthur block of Coimbatore district

C. BHARATHI AND M. SANGEETHA

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 : *May, 2008*
• • • • • • • • • • • • • • • •

ABSTRACT
Six hundred soil samples from selected villages of Thondamuthur block of Coimbatore district were collected and analysed for available sulphur to delineate S deficiency. The results revealed that 30 per cent of the soil samples were low in available S that were found in Kallimangalam, Mukasimangalam, Vadivelampalayam and Nathegoundenpudur which need S application to enhance the crop productivity. About 33 and 37 per cent of the soil samples were under medium and high available S status, respectively.

Key words : Thondamuthur, Available sulphur, S deficiency.

Intensive cropping system with high yielding varieties for boosting food production caused marked depletion of inherent nutrient reserves in soil. Consequently along with deficiency of N, P and K, the deficiency of secondary and micronutrients are frequently reported. Among the secondary nutrients a good response to sulphur fertilizers has been reported by many authors (Narendranath, 2005; Jena *et al.*, 2006). Total sulphur content of Indian soils are between 19 and 3836 ppm (Renukadevi *et al.,* 2002) and it varies in amounts depending upon its content in the primary minerals, organic compounds and in the soil solution.

Gupta and Dubey (1998) delineated sulphur deficient areas in Madhyapradesh. In Tamil Nadu sulphur deficiency between 7- 40 per cent has been reported and mostly red soils coming under Alfisol, low level laterite soils and alluvial soils with low organic status are found to have more sulphur deficiency than any other soils (Sankaran, 1989). A preliminary investigation carried out in Tamil Nadu has shown that the occurrence of sulphur deficiency was more than 40 per cent in Madurai, Villupuram, Thiruvannamalai and Thiruvallur districts, between 20-40 per cent in Coimbatore, Erode, Trichy and Dindugal districts, less than 20 per cent in Thanjavur, Tuticorin, Kanyakumari, Ramnad and Nilgris (Maragatham, 2001 and Arunageetha, 2001). However, precise delineation at block levels has not been carried out so far. With this background the present study was undertaken to delineate sulphur deficient areas in Thondamuthur block of Coimbatore district.

MATERIALS AND METHODS
In order to delineate sulphur deficient areas in Thondamuthur block of Coimbatore district, 14 village were selected, and at random 600 surface soil samples were collected during soil survey and analysed for available sulphur by turbidimetric method (Williams and Steinberg, 1959) after extracting with 0.15% CaCb- S. Based on soil test rating, the soils were categorized as low (0-10 mg kg^{-1}), medium (11-20 mg kg^{-1})and high (> 20 mg kg^{-1}).

RESULTS AND DISCUSSION
The available sulphur status of soil samples revealed that there is a considerable variation in available sulphur (Table l). Out of 600 samples 30 per cent of samples were low in available sulphur status whereas 33 and 37 per cent soil samples were under medium and high available sulphur status, respectively. Among the villages the percentage of sulphur deficiency was found to be high in Kallimangalam followed by Mukasimangalam, Vadivelampalayam and Nathegoundenpudur.

Similar studies supporting the present findings were carried out by Poongothai *et al.*(2002) who delineated sulphur deficient soils in Erode district of Tamil Nadu by analyzing 410 surface soil sample in selected villages of Sathyamangalaili taluk and categorized the degree of deficiency as low, medium and high.