



A study on available macronutrients and their effects on soil of sola reserve, forest of Sivasagar, District

MARZIANA BEGUM AND M. GOGOI

ABSTRACT

Sola reserve forest of Sivasagar district is one of the important unit of northeast biogeographic zone specially in phytodiversity. Soil play a vital role in the development of forest canopy. The major macronutrients are nitrogen, phosphorus, potassium, calcium, magnesium and sulphur. Analytical studies of most of the macronutrients and soil pH were performed in the NBSS and LUP (ICAR) laboratory, Jorhat, Assam. Drilling operation of ONGCL is a major threat to the biodiversity of the area. Soil contamination of crude oil is a common phenomena of the locality, therefore, some results were found not satisfactory. Certain endangered and threatened medicinal plants are found. Environment Management and Pollution Control Dept. have set up by ONGC for achieving zero pollution in the drilling, production and other allied activities. ETP is the main control measure.

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Key words : Sola RF, Macronutrients, Drilling operation, ETP (Effluent Treatment Plant)

INTRODUCTION

The Sola reserve forest is situated in Charaideo subdivision, Sivasagar, Assam and lies between 94°08' to 95°04' East longitude and 26°07' to 27°02' North latitude. Safrai river flow near Sola forest and rainfall is about 250mm. The type of soil is alluvium and the climate of this area is tropical monsoon. Temperature ranges from 10°C – 36°C and the area comprises evergreen, semi evergreen, grassland and deciduous forest

The soil is the natural medium for plant growth. It is a mixture of inorganic mineral particles and organic matter of varying size and composition. Soil supplies nutrients for plant growth and plants manufacture food for animals and man also. Essential elements used by plants in relatively large amounts are called macronutrients. The major macronutrients are nitrogen, phosphorus, potassium, calcium, magnesium and sulphur. The productive soil is one which contains adequate amounts of all essential elements in forms readily available

to plants. The various nitrogen transformation and other plant assimilation processes have clearly different effects on soil pH. (Lavelle and Spain, 2007). Plants deficient in nitrogen suffer 'chlorosis' *i.e.* develop pale-yellowish green colour. Phosphorus enhances many aspects of plants physiology and their different availabilities depend much on pH. Potassium is required by all living organisms and its major roles in plants are in pH stabilization, osmoregulation, enzyme activation and membrane transport processes. Calcium and magnesium have essential roles in the nutrition of living organisms and through a strong association with soil pH, calcium concentrations strongly effect the availability of other elements to plants. Sulphur is a component of the essential amino acids.

The North Eastern region India is rich in petroleum resources. Soil resource generally suffers from lack of attention. Since the soil in general are degrading at a rate faster than there natural regeneration, it becomes

Correspondence to :

MARZIANA BEGUM, Department of Chemistry Sivasagar Girls' College, SIVASAGAR (ASSAM) INDIA

Authors' affiliations:

M. GOGOI, Department of Botany, Gargaon College, SIMALUGURI (ASSAM) INDIA