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SKIM LATEX AS A POTENTIAL SOIL CONDITIONER IN A SANDY LOAM SOIL

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Skim latex – a waste material of rubber latex processing industry – was tested for the modification of physical properties of a sandy loam soil. Treatments, at 0.05, 0.10 and 0.20 per cent concentrations, were found to enhance water stable aggregates by 6, 29 and 56 per cent, modulus of rupture by 15, 31 and 91 per cent, and saturated hydraulic conductivity by 15, 23 and 28 per cent, respectively. The treatments increased the pore sizes corresponding to 30 and 60 cm H_2O suction and decreased the available water content. Soil water diffusivity at the lower side of the moisture content was reduced and evaporation from the soil surface suppressed by the treatments.

Key words: Natural rubber, Skim latex, Rubber treatment, Water stable aggregates, Modulus of rupture, Saturated hydraulic conductivity, Moisture retention, Soil conditioner.

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INTRODUCTION

Natural rubber is cis–1, 4-polyisoprene. Olefinic bonds and methylenic hydrogen atoms of rubber provide the active sites for chemical reactions (Soong, 1979). Even at very low concentrations rubber effectively aggregated sandy soils (Lim, 1975; Soong and Yeoh, 1975). Aggregation, in turn, changed the other physical properties such as modulus of rupture, hydraulic conductivity etc (Schamp *et al.*, 1975).

The type of rubber used in the present study was skim latex, a waste material of rubber latex processing industry. Though rubber in its natural form has been tested as a soil conditioner by several workers (Lim, 1975; Soong, 1979), skim latex is little studied.

MATERIALS AND METHODS

The experimental soil (Ultic Haplustalf) was sandy loam in texture. The soil (0–10 cm layer) had the following characteristics:-

sand	73%
silt	12%
clay	15%
bulk density	1.5 g cm^{-3}
water holding capacity	24%
CEC	8.4 meq $100g^{-1}$
pH	5.4
EC	0.8 mmhos cm^{-1}
organic C	0.41% and
total N	0.059 %

Rubber, as skim latex (procured from the Rubber Research Institute of India,