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EFFECT OF CONTINUOUS CULTIVATION OF RUBBER (*HEVEA BRASILIENSIS*) ON MORPHOLOGICAL FEATURES AND ORGANIC CARBON, TOTAL NITROGEN, PHOSPHOROUS AND POTASSIUM CONTENTS OF SOIL

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The effect of continuous cultivation of rubber on soil properties was investigated. Soil morphological properties, organic C and total N, P and K were estimated in the soil profiles samples in plantations in which rubber was grown for more than sixty years. Soil samples from adjoining natural forests were studied for comparison. The study revealed that while the morphological properties were not significantly affected, the total N and K status decreased and the P status increased under continuous rubber cultivation. The study points out that application of higher dose of N and K fertilizers and a reduction of the current rate of P fertilizer are necessary.

Key words : *Hevea brasiliensis*, morphological properties, Soil, Soil nutrient status

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INTRODUCTION

Rubber (*Hevea brasiliensis*) cultivation in India had been confined to a narrow tract in the south-western side of the Western Ghats till the 1960s and the plantations were originally raised mostly in freshly cleared forest areas of high soil fertility compared to the cultivated areas of the region. Investigations on the effect of conversion of natural forests into manmade plantations are many. But, most of these studies were mainly confined to crops other than rubber. A few studies conducted on rubber were confined to the first cycle of cultivation (Aweto, 1987) only. Hence an investigation was carried out to study properties of the soils under rubber in the third planting cycle and to compare the same with those of the adjacent natural forests.

MATERIALS AND METHODS

The study was conducted in four locations *viz.*, Nilambur, Chemoni, Mundakayam and Vithura representing the traditional rubber growing belt in India. The sites for soil sample collection were located both in rubber plantation and nearby undisturbed natural forests of similar physi-