

ACTINOMYCETES POPULATION OF RUBBER GROWING SOILS AND ITS ANTAGONISTIC ACTIVITY AGAINST *PHYTOPHTHORA MEADII* (Mc RAE)

Kochuthresiamma Joseph, Kothandaraman, R. and Jacob Mathew

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The population of bacteria, fungi and actinomycetes in fifteen rubber growing soils was estimated. The occurrence of actinomycetes antagonistic to *Phytophthora meadii* (Mc Rae) and the extent of inhibitory activity were studied. In general, the population of bacteria was more than that of both fungi and actinomycetes and they varied widely in different soil samples. All soil samples, irrespective of the pH and microbial population, harboured actinomycetes antagonistic to *P. meadii* and majority of these isolates had inhibition zones upto 15 mm when tested by cross streak assay. In spite of the presence of such large number of actinomycetes antagonistic to *P. meadii*, various diseases caused by this pathogen reoccurred every year.

Key words – Actinomycetes, Antagonism, *Phytophthora meadii*.

Kochuthresiamma Joseph (corresponding author), Kothandaraman, R. and Jacob Mathew
Rubber Research Institute of India, Kottayam-686 009, India.

INTRODUCTION

Soil is the treasure house of many useful micro-organisms and among them the actinomycetes are of particular importance, since they are capable of producing antibiotics. The richness of soil actinomycetes as a source of antagonistic micro-organisms, has been well understood (Waksman and Woodruff, 1940). About 20 per cent of the actinomycetes in soils exhibit antagonistic properties (Waksman and Woodruff, 1940; Waksman *et al.*, 1942) and they play an important role in the control of soil borne plant pathogens (Likais, 1952; Baker and Cook, 1974). Different species of *Phytophthora* cause diseases like abnormal leaf fall, fruit and shoot rots, patch canker and black stripe in *Hevea* (Radhakrishna Pillay *et al.*, 1980; Radhakrishna Pillay and

George, 1980). The modern approach in the management of diseases caused by soil-borne plant pathogens is the use of bio-control agents and an understanding of the antagonistic actinomycetes in rubber growing soils may be of much use, when biological control measures are thought of. This study reports the presence of actinomycetes antagonistic to *P. meadii*.

MATERIALS AND METHODS

Surface, 0-15 cm depth, soil samples were collected from fifteen locations under different agroclimatic conditions and at various stages of growth of rubber plants. The populations of total bacteria, fungi and actinomycetes were estimated by serial dilution plate method of Timonin (1940) using soil extract agar, Martin's rose bengal agar