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STUDY OF THE MICROBIAL POPULATION OF A TYPICAL FOREST SOIL AT 2 ELEVATIONS

Little work has been done to isolate and study the microorganisms that occur in Kerala soils which exhibit antibiotic properties. It was in this context that the present investigation was taken up. Soils from Ponmudi at a 2 elevations were taken up, since it is hilly tract with a cool climate and possessed the maximum microbial population. Organic matter and humus content influences the total soil microbial population was reported by Blue *et a!* (1955). Gray and Wallace (1957) found a significant positive correlation between the numbers of bacteria, actinomycetes and the organic matter level.

The microbial population at 3 depths were studied namely 0-7 cm, 7-15 cm and 15-30 cm. This was studied by the soil dilution and plate technique as outlined by Timonin (1940). Soil extract agar, Peptone dextrose agar with rose bengal and Jensen's media were used for bacteria

Total microbial population 10^6/g of dry Sample

	Bacteria	Fungus	Actinomycetes	pH	N_2%	P_2O_5%	K_2O%	aO%	MgO%
Ponmudi 300 m above M.S.L. 0-7 cm	40.71	4,75	9.13	6.9	1.10	0 22	0.41	0.02	0.10
7-15 cm	55.66	4.11	9.76	6.6	1.13	0.29	8.36	0.02	0.14
,, 15 - 30 cm	23.43	1.01	4,30	6.3	1.02	0.24	0.25	0.01	0.09
Ponmudi 975m above M.S.L. 0 - 7 cm	17.60	1.01	3.16	6,2	0.90	0.15	0.08	0.01	0 06
,, 7 - 15 cm	9.64	0.63	3.15	5.9	0.87	0.13	0.06	0.01	0.01
,, 15 - 30 cm	3.41	0.47	2.06	5.8	0.32	0.14	0.06	0.01	0.01

fungi and actinomycetes respectively. Soil dilutions were plated in triplicate for each taeatment. The plates were incubated at room temperature. The counts of bacteria and fungi were taken after 6-7 days and actinomycetes after 10-14 days. The results are given in th table. The bacteria included grain negative, gram positive and spore formers. The fungi comprised of species of *Aspergillus, Penicillium, Mucor, Pestalotia, Cylindrocladium* etc, Among the actinomycetes the predominaant group was *streptomyces* species.

Of the 2 soil types studied, Ponmudi Soil at 300 m above M. S. L. was found to contain the highest population of bactaria, fungi and actinomycetes. This is considered due to the high organic matter content : the soil. That the organic matter content of a soil can profoundly influence the microbial population is already known. The comparatively higher pH of the surface soil may be another factor which have favourably influenced the microbial population. The highest microbial population was found in top layers namely 0-7 cm and 7-15 cm. A steady decrease in tha population was noted in the lower layer.

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Agricultural College, \MMA PHILIP
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