

Effect of soil structural property on protozoan population

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The effect of soil structural properties on protozoan populations was investigated in an upland soil with manure application. We examined soil structural properties (size distribution of soil particles, moisture content), biological properties (microbial biomass, using the fumigation-extraction method), and the protozoan viable count (by the most probable number method). Protozoan distribution in soils with particles of different size classes (>2, 1.0 to 2.0, 0.5 to 1.0, 0.25 to 0.5 and <0.25 mm) was also examined. Large particles (>0.5 mm) were 68% of the total soil particles in the soil with manure application, while in the soil without manure application they were 43%. Protozoan viable count in the soil with manure application was $1.16 \pm 0.13 \times 10^3$ cells/gram dry soil, while that in the soil without manure application was $1.37 \pm 0.36 \times 10^2$ cells/ gram dry soil. The size of protozoa in the soil with manure application, estimated by the following calculation: 'length (μm) \times width (μm) = area (μm^2)', was larger than in the soil without manure application. These results suggest that soil structural properties affect the protozoan population in the upland soil.