IMPORTANCE OF IMPROVING BIOLOGICAL ACTIVITY OF TEA SOILS IN
SOUTHERN PROVINCE OF SRI LANKA.

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The detrimental effects of soil pesticides on soil micro biota and biodiversity of the tea
ecosystem are poorly understood. In the current study, microbial activity in southern tea
soils of Sri Lanka as affected by application of commonly used soil pesticides and certain
cultural practices was evaluated by measuring the soil respiration in vitro and in vivo.

CO₂ evolution rates in Southern tea soils were generally low as compared to soils in other
areas. Herbicide and formalin applications significantly (p=0.005) suppressed the
biological activity of Southern tea soils; the nematicide tested was less effective.
Incorporation of compost and tea waste significantly (p=0.005) elevated CO₂ evolution rate
in tea soils than that of undisturbed, virgin forest soils. Forking strengthened microbial
biomass through improved soil physical conditions. Soil biomass was positively correlated
with growth of the test plants viz. tea and tomato.

Southern tea soils with low organic matter contents are exposed to repeated application of
herbicides and negligence of important agronomic practices due to labour shortage. Such
malpractices could aggravate potential build up of pesticide residues in the soil. Thus,
 improvement of soil organic matter status by incorporation of various organic amendments,
establishment of green manure crops, rehabilitation of old tea soils and more importantly,
restricted usage of agro-chemicals etc. is essential. These practices will assure long-term
sustainable productivity and quality of soils as well as help degrade accumulated chemical
residues and elevate densities of soil microbial communities. As a consequence, increased
efficacy of bio control of nematodes and soil borne pathogens and proper administration of
natural nutrient cycles could be envisaged.

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