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THE ROLE OF NITRIFYING BACTERIA IN TEA SOILS

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Nitrification in soil is most rapid at neutral or slightly alkaline reaction, but little is known about nitrification in acid soils. Ishaque and Cornfield (1976) reported that nitrification is heterotrophic in Bangladesh tea soils but no conclusive evidence was presented. Bhuiya and Walker (1977) detected autotrophic nitrifying bacteria in some other tea soils from Bangladesh.

We have isolated and identified pure cultures of (ammonium oxidizing) autotrophic, nitrifying bacteria from several acid tea soils from Sri Lanka. The continuous Gas Flow-Through system developed by Wickremasinghe *et al.*, (1978) was used to demonstrate that these nitrifiers are active even in acid tea soils. The advantage of this technique is that by merely changing the gas phase from anaerobic to aerobic we can induce nitrification or denitrification to occur. The nitrate produced during nitrification of NH_4^+ — N in the soil is estimated as N_2 and N_2O during denitrification by Gas chromatography.

We conclude that the autotrophic nitrifying bacteria present in Sri Lanka tea soils are actively nitrifying the NH_4^+ to NO_3^- even in these acid soils.

References:

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