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A STUDY ON
FACTORS INFLUENCING NITRIFICATION
IN REGOSOLS

BY

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A RESEARCH REPORT

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ABSTRACT

The microbial activity involved in nitrification and the rapidity and extent of transformation of ammonia to nitrate nitrogen is greatly influenced by soil environmental conditions. Since the environmental factors favouring the growth of most agricultural plants are those that also favour the activity of the nitrifying bacteria, it was intended to study the effect of soil temperature, soil moisture content and soil reaction on the rate of nitrification in regosols of the Eastern Province.

Accordingly, an incubation experiment was conducted in the laboratory of the Division of Agricultural Chemistry, Eastern University in order to achieve such objective. Three levels of temperature (23°C, 30°C and 37°C), three levels of moisture content (3, 6 and 9% oven dry basis) and three levels of $CaCO_3$ (0, 1 and 2g/300g soil) were combined to form 27 treatments in the experiment.

The main effect of treatments on nitrate production shows that the most favourable conditions for nitrification in regosols are the temperature of 30°C, moisture content of 6% and an addition of 1g/300g of $CaCO_3$. As the process of nitrification proceeds, there is a simultaneous decrease in ammonium nitrogen thus confirming the fact that the nitrates are produced at the expense of ammonium ions. There was also a gradual decrease in soil pH indicating that nitrification decreases the pH of the soil.

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