AMELIORATION OF FARM LAND SOIL OF KOTHANUR VILLAGE, NORTH BANGALORE THROUGH TECHNOLOGY TRANSFER FROM LAB TO FIELD

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ABSTRACT:

Non-sustainable agricultural practices and other activities over years degrade the soil quality. The continuous process of application of chemical fertilizers, to expect more profit in terms of good harvest also, turn as adverse effect to the soil. Continuous increase in global human population, consumption lead to the depletion or alteration of natural resources. However, when it reaches beyond the tolerance limit, there will be an elimination of the beneficial organisms which leads to the succession of common organisms which in turn reduces the nutritive addition of the soil. The most ecofriendly sustainable agriculture, an important agricultural management practice, is known to modify soil microbial biota. This approach termed as 'green technology' has been exploited for biofertilizer preparation. With this background, the present study was carried out to rescue the barren area of Kothanur village by applying beneficial soil microorganisms in the form of granular deposition and to try out the productivity of the soil after application with some agro beneficial vegetable crops.

Statement of Problem:

The outcome of the present study as follows, the soil of the study site was unproductive and devoid of the required nutrients which support the growth of plants. The texture of the soil and microbial load in the selected site was not satisfactory to categorize it as productive land. Adopting a rational approach, the present study was probed to ameliorate the barren soil of Narayanapura village through technology transfer from lab to field by applying beneficial microbial biofertilizers to remediate the soil fertility to thrive sustainable agribusiness for upcoming.

Objectives of this study

The present study aims to ameliorate the barren soil of village land near Kristu Jayanti College to restore fertility by applying beneficial microbial bio-fertilizers to regain soil fertility and make the suit for agronomy.

Methods

Beneficial soil bacterial genus of *Rhizobium sp.,* was isolated from root nodules of a legume plant. Similarly, *Azotobacter sp., Acetobacter sp*. and Phosphobacteria were isolated from a soil sample collected from Kristu Jayanti College campus in Microbiology Laboratory using specific isolation media. Carrier material peat was chosen to carry the microbial population for long time storage and application. The prepared beneficial bacterial cultures in broth were mixed separately with an equal proportion of carrier material until it holds maximum moisture content by manually then packed individually in sterilized low-grade polythene cover, sealed properly, labeled with date and strain and stored at room temperature for soil application in the experimental plot.

Major Findings

Application of formulated bio-fertilizers with beneficial microbes slowly improved the quality of the soil. After ameliorating with the addition of cultured free-living organisms, the soil supported the growth of the vegetable crops. It was also observed that the profile of the nutrients in the particular site was satisfactory and found productive after bio-fertilizer application.

Results

From these observations, it can be concluded that the experimental space was unproductive land left initially without cultivation. The prevailed soil nutrients and other soil properties were not suitable for any tilling. After these experimental observations, the practices like weeding, watering, ploughing and application of organic microbial bio-fertilizer in right combinations and continuous agro practices, the land became productive with proven results with vegetable cultivation. It can be concluded that, if any impoverished land is properly utilized and used for tillage, which will surely remain fertile and suitable for habitation and cultivation.

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