

Effect of Sewage on Soil Properties

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ABSTRACT

In this study, plants had been irrigated with both freshwater and sewage water. The soil change into examined for diverse charecterstics. To analysis the positive effects of home waste water on soil houses, fresh water sample and household wastewater samples are disposed into the soil distinctly. The utility of wastewater soil parameters Phosphorus, K & pH of two soil pattern containing sewage and groundwater then turned into determined. By Introducing of the sewage improves the physicochemical property of the soil as comparison with to groundwater. Sewage leads to increase the crop yield with move it's fertility character of the soil. There is a large change in the residence of the soils irrigated with sewage and groundwater. Hence, use of sewage for irrigation is a huge method for the control of wastewater. Sewage farming is a good method to lower the rise of demand of freshwater.

Keywords: Plants, Home waste water, Soil parameters (Potassium, Phosphorus and pH)

1. Introduction

The growth of population of cities, towns and development of industries by 20th century ends in difficulty of disposing of domestic wastes, which endorsed the usage of sewage wastewater in irrigation. The exercise of use of domestic sewage in farming is becoming known because the necessity of water is increasing rapidly. Because of speedy commercial improvement and the boom of population, the supply of water reduces day by day. In this increase in this growth inside the populace has caused invitation for water and the improved production of wastewater. The high satisfactory water is maintain and the lower great is uses for agricultural function. Irrigation with use of sewage water became a general exercise in dry and semi dry places, in which it changes into readily found and financial to freshwater. In the last objective of sewage control is the obstruction of the surroundings which the closing purpose of wastewater directs is the barrier of the environment in a way corresponding with public fitness and socio-monetary concerns. In using natural device for infrastructural function is a depend which contains less of stakeholders and guidelines who could be affected and likewise the addition of one of these system needs to be taken up, if and most effective if all questions are met and proper solutions for each are got. In the advantages of wastewater used in irrigation are diverse however care should be taken to avoid short and long time effect on environmental. In because of the growth inside the necessity of water, we need to adopt process of recycle and reuse method to decrease

the load of available resources. In sewage is a main load on water bodies and its incorrect disposal promotes increase of toxic agents which create aquatic behavior. In the exercise of using again is the basic need of the current time. This is the best manner to satisfy the demand for clean water. Sewage has affected negatively each soil fitness and crop productiveness. In sewage has ended in advanced physicochemical traits of soil. In home wastewater contains important plant nutrients which include Phosphorus, K and micronutrients which can be beneficial for plants growth. In evaluated the changes in soil parameters after discharging household wastewater on soil.

2. Objective and Methods

2.1 Soil Sample Collection and Analysis

A laboratory set was used for achieving the work to examine the impact of utilization of sewage for watering of soil. For this purpose, waste water treated soil was collected from Ridhi Siddhi, Mansarovar and soil treated with ground water was collected from Jagatpura.

Then the soil parameters like Phosphorus, Potassium and pH Conductivity was determined.

2.2 Sampling of Water and Analysis

The waste water was collected from near Ridhi Sidhi, Mansarovar and ground was collected from Jagatpura.

2.3 Method and Analysis

The soil parameters Phosphorus, Potassium and pH was determined for each two soil samples in which one soil sample is the soil irrigated with ground water and other one is irrigated with waste water.

2.3.1 Tests Performed

Following tests were performed on soil:

1. Determining the soil parameters Phosphorus, Potassium and pH of soil sample that was irrigated with ground water.
2. Determining soil parameters Phosphorus, Potassium and pH of the soil sample that was irrigated with sewage water.

3. Results

The following tests was performed at Rajasthan Agricultural Research Institute, Durgapura.

3.1 Test Results

In this study, we find out that the physicochemical characteristics of ground water Table 1 and the physicochemical characteristics of wastewater sample in Table 2. The soil parameters were examined for ground water irrigated soil Table 3 and for sewage irrigated soil table 4. It finds both convenience and problem arising in using sewage water and ground water for irrigation. By

Using recycled waste water for irrigation, helps in water saving and nutrient recover, hence, decreasing the demands of fresh water. There is the variation in soil parameters (Phosphorus, Potassium, Organic Carbon and pH) of soil in between irrigated by ground water and irrigated by waste water.

Table 1 Characteristics of Ground water

pH	8.07
Electrical conductivity	1.19
Sodium	9.26
Hardness	5.00
Chloride Content	40.0
S.A.R	5.56

Table 2 Characteristic of Sewage

pH	7.39
Electrical conductivity	1.82
Sodium	7.38
Hardness	6.00
Chloride Content	35.00
S. A. R	3.36

Table 3 Soil parameters of sample irrigated by ground water

pH	Organic Carbon (%)	Phosphorus (PPM)	Potassium (PPM)
9.25	0.42	35	275

Table 4 Soil parameters of sample irrigated by waste water

pH	Organic Carbon (%)	Phosphorus (PPM)	Potassium (PPM)
8.05	0.18	55	299

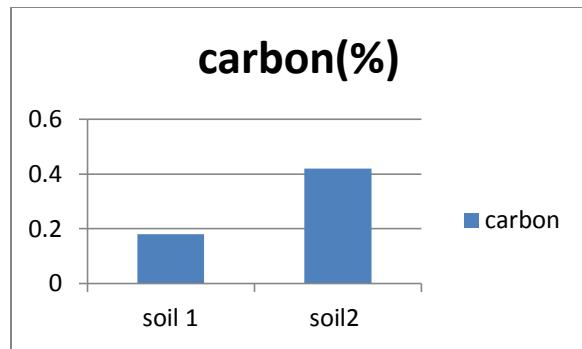
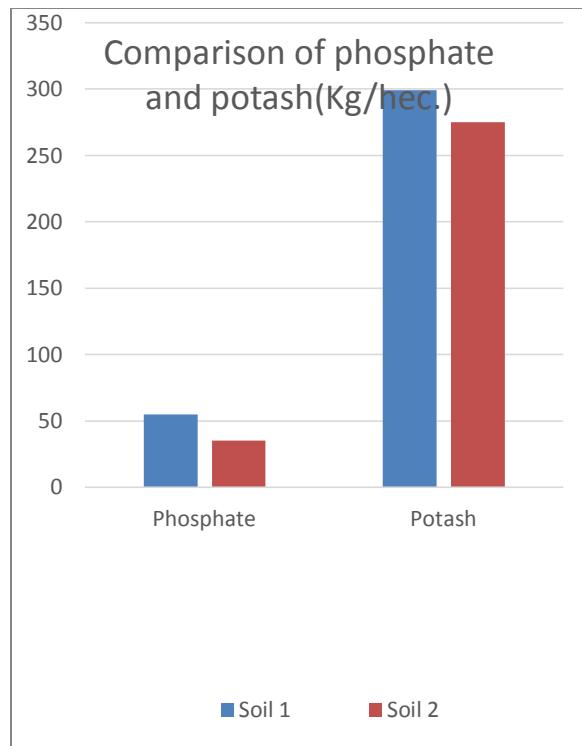
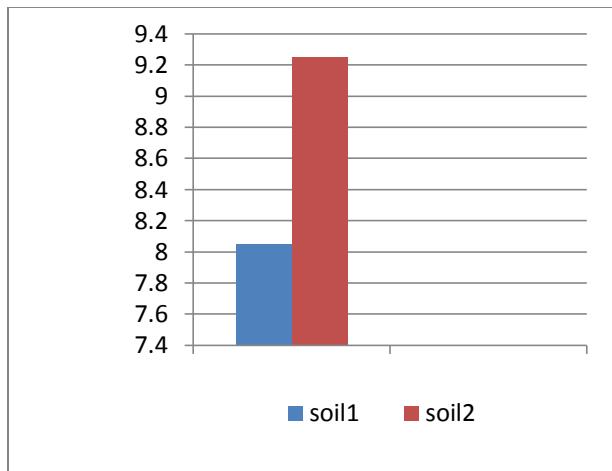


Figure1. Variation in Organic Carbon between sewage soil and normal soil



pH Of Soil

**Soil 1- Sewage Soil****Soil 2- Normal Soil**

4.Conclusion:

The value of Phosphorus and Potassium is higher and the value of Organic Carbon is lower in soil sample that was irrigated by sewage. Thus, the use of waste water can prove beneficial for plant. Application of household water improved the crop production compared to irrigation with fresh ground water; it also increases total Phosphorus and Potassium content of soil. So, we can use domestic waste water for irrigation due to inadequate availability of water resources and provide a substitute method of waste water management.

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