BY USING INDUSTRIAL WASTE FOR DEDUCTION OF PRODUCTION COST IN VILLAGE KANDE

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Abstract:

Analysis of soil quality from Shirala area of Sangli District. Black soil Samples are collected from field for obtaining the information about soil quality, evaluation of fertilizer status, indigogenous soil fertility. Spent wash is usually considered as waste of distillery processes and can be classified as a dilute organic liquid fertilizer with high potassium content. Therefore judicious application of spent wash will improve crop productivity and alleviate environmental pollution problems. Nutrient composition of crude and digested spent wash and effect of their application on sugarcane growth and biochemical attributes were studied. In present investigation, an attempt has been made to determine the nutrient composition of crude and digested spent wash and their impact on germination, growth and biological attributes. Spent was produced from distillery industries is rich in organic material and characteristically less toxic and easily amenable for microorganisms.

The reuse of spent wash for such as agricultural improvement of properties, that needs to save the environmental pollution of soil, sample were taken from agriculture field in village kande. The experiment consisted initially before the sparing spent wash sample taken for testing of soil properties such as pH, E.C., Nitrogen, Phosphorus, Organic Matter as well as microelements was tested. After the few day spent wash sprayed on the same field after some day samples were collected as per the recommended procedure and testing should be carried out and to observed the same properties. Present study deals with application of spent wash and its effect on soil characteristics, it gives the beneficial impacts of spent wash on soil properties.

KEYWORDS: Soil, fertility, pH, E.C., Nitrogen, Phosphorus, Micronutrients.

INTRODUCTION:

The distillery spent wash is rich in nutrients and organic components [1-5] with high BOD. Therefore it applied for field; it increases the soil organic matter content, micronutrient content. The spent wash being loaded with organic compounds could bring remarkable changes on the chemical properties [5-9] of soils and thus influences the fertility of soil. The continuous application of spilt doses was found better than one time application of spent wash in promoting the growth activities throughout the crop [10-15], mainly by providing study supply of nutrients and organic matter.

The spent wash addition increased the activity of phosphate, other nutrient in dry land. Also the high concentration of soluble carbon added from the spent wash application might be responsible for the enhanced enzyme activities. This condition may be favorable for number of nutrient in soil; present study deals with the effect of effluent from alcohol industry after giving the spent wash [15-19] to the land are observed and maintained into this paper.

MATERIAL AND METHODS:

Methods of Analysis:

1) Collection of the Sample: Sample is collected as per the recommended procedure [1,2].
2) Required Chemicals: All of the chemicals are prepared as per the recommended procedure. All of the chemicals are used AR grade.[2,3,4].
3) Instruments: [1]
    a. pH meters- Model EQ-610
    b. Conductivity Meter- Model EG-660

c. Atomic Absorption Spectro Photo Meter-Model
d. Spectro Photo Meter.

RESULTS AND DISCUSSION:

The samples are collected as per the recommended procedure and obtained from collected samples from Kande before using spent wash are summarized as follows original sample analyzed the results are summarized in (Table 1.) The comparison between the reports of soil with addition of spent wash and without addition of spent wash is shows that the spent wash increases the soil quality.

In the first report of analysis of soil means without use of spent wash , pH is 6.93 , E.C. is 0.33, Nitrogen is 187.00, Phosphorous is 31.00, calcium is 250.00, organic carbon is 0.86 % , $CaCO_3$ is 2.25, Cu is 0.92 , Fe is 3.00, Mn is 3.60 and Zn is 0.80 ppm. Means in first report the all parameters are less or medium (Table 1).

As per the above elemental observation he suggested the fertilizers in different methods. In first method 5 bags of urea are required and 4 bags of single super phosphate needed also potash is 2 bags are required. In second method, 4 bags of urea, 3 bags of 10:26:26 are required. In third method 4 bags, 2 bags of D.A.P and 2 bags of potash required. At the time of plantation 5 kg of zinc sulphate, 5 kg of ferrous sulphate and 5 kg of copper sulpahte required.

After addition of spent wash pH is 6.30 , E.C. is 3.25 mm/cm, Nitrogen is 770 kg/ha, Phosphorous is 92.00 kg/ha, calcium is 980.00 kg/ha, O.C. is 3.50 %, $CaCO_3$ is 2.00 % , Cu is 5.50 ppm,. Fe is 10.00 ppm, Mn is 15.50 ppm and Zn is 4.10 ppm.

As per the second observation he suggested the following fertilizers in different methods for this condition suggested fertilizers are urea 2 bags, single super phosphate 3 bags and potash 2 bags in first method. In second method 1 bag of urea, 1 sack of D.A.P and 2 bags of potash are required. In third method 2 bags of urea, 1 bag of DAP and 2 bag of potash are required. At the time of plantation zinc sulphate , ferrous sulphate and copper sulphate are not required.

After addition of spent wash urea is reduced by and bags, single super phosphate is reduced by 1 bag, potash is not reduced DAP is reduced by 1 bag and 10:26:26 is not reduced. As per above results we can concluded that the addition of spent wash in soil is very effective method for increase quality of soil and also fertility of soil.

Table No. : 1 Name of Village:, Kande, Tal-Shirala, Dist- Sangli.[8,9,14,15]:

Sr. No	Parameter	Unit	Observed value	Limit
1	pH	---	6.93	6.5-8.5
2	E-Conductivity	Mmhos/cm	0.33	<4.0
3	Nitrogen	Kg/ha	187.00	100-200
4	Phosphorous	Kg/ha	31.00	30-40
5	Potassium	Kg/h	250.00	110-280
6	Organic Carbon	%	0.85	>0.50
7	Calcium	%	2.25	0.1-3.2
8	Copper (Cu)	ppm	0.92	0.3-0.5
9	Iron (Fe)	ppm	3.00	2.5-4.5
10	Manganese (Mn)	ppm	3.60	1.0-2.0
11	Zinc (Zn)	ppm	0.80	0.5-1.2

Table-IIA: As per the soil analysis fertilizers has suggested per Acer given in the.

Sr. No.	Time factor for use of fertilizer.	Pack in Kg	Method I			Method II		Method III		
			Urea	Super Phos.	Potash	Urea	10:26:26	Urea	DAP	Potash
1	Plantation	50 kg	0.50	2.00	1.00	-	1.50	-	1.00	1.00
2	After 6 to 8 week	;;	2.00	-	-	2.00	-	2.00	-	-
3	After 12 to 14 week	;;	0.50	-	-	0.50	-	0.50	-	-
4	Final Dose	;;	2.00	2.00	1.00	1.50	1.50	1.50	1.00	1.00
	Total→		5.00	4.00	2.00	4.00	3.00	4.00	2.00	2.00

Table- II B: As per the soil analysis fertilizers has suggested per Acer micronutrients given in the

Sr.	Methods	Micronutrients per Acer

No.					
		Zinc Sulphate	Ferrous Sulphate	Manganese Sulphate	Copper Sulphate
1.	Initial Plantation	5 kg	5 kg	-	5kg
2.	Finally	5 kg	5 kg	-	5 kg

Table No. III: Result of analysis of Soil after addition of spent wash.

Sr. No	Parameter	Unit	Observed value	Limit
1	pH		6.36	6.5-8.5
2	E-Conductivity	Mmhos/cm	3.25	<4.0
3	Nitrogen	Kg/ha	770.00	100-200
4	Phosphorous	Kg/ha	92.00	30-40
5	Potassium	Kg/h	980.00	110-280
6	Organic Carbon	%	3.50	>0.50
7	Calcium	%	2.00	0.1-3.2
8	Copper (Cu)	Ppm	5.50	0.3-0.5
9	Iron (Fe)	Ppm	2.00	2.5-4.5
10	Manganese (Mn)	Ppm	15.50	1.0-2.0
11	Zinc (Zn)	Ppm	4.10	0.5-1.2

Table-IVA: As per the soil analysis fertilizers has suggested per Acer given in the

Sr. No.	Time factor for use of fertilizer.	Pack in Kg	Method I			Method II		Method III		
			Urea	Super Phos.	Potash	Urea	10:26:26	Urea	DAP	Potash
1	Plantation	50 kg	-	1.50	1.00	-	1.50	-	0.50	1.00
2	After 6 to 8 week	;;	1.00	-	-	1.00	-	1.00	-	-
3	After 12 to 14 week	;;	-	-	-	-	-	-	-	-
4	Final Dose	;;	1.00	1.50	1.00	-	1.50	1.00	0.50	1.00
	Total→		2.00	3.00	2.00	1.00	3.00	2.00	1.00	2.00

Table- IV B: As per the soil analysis fertilizers has suggested per Acer micronutrients given in the.

Sr. No.	Methods	Micronutrients per Acer			
		Zinc Sulphate	Ferrous Sulphate	Manganese Sulphate	Copper Sulphate
1.	Initial Plantation	NIL	NIL	NIL	NIL
2.	Finally	NIL	NIL	NIL	NIL

CONCLUSION:

All values of elements are increased. Increased value compared with Std. limiting value. Initial original analyzed sample value all ready less than limiting value and spent wash sprayed sample again value decreases than that of the original sample value this effect was observed on the soil. But chlorides increases larger quantity but less than limiting value.

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