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Cow Dung for Treatment of Saline Soil and Cow Importance from Vedas

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Abstract - The number of factories is increasing day by day in various industries. So, in order to meet the demand of population, industries are increasing their production capacities and simultaneously some industries are polluting the environment by releasing waste in environment with out treating them and eventually affecting the ecosystem as these untreated waste pollutes not only water but also pollutes groundwater, land and air also and if it enter the plants through than it enter the food chain and ultimately affecting all the members of ecosystem. The soil samples were collected from different location and with the aim to improve manually contaminated soils samples by saline water, cow dung was used for treating those polluted samples. These soil samples were analyzed at laboratory to observe the role of Indian Cow dung in improving polluted soil. In soils samples collected from different location salty water was added and effects on electrical conductivity of that polluted soil samples was measured. The electrical conductivity of that polluted soil samples was measured on addition of Indian cow dung after six month. The electrical conductivity lowered to much great extent. The electrical conductivity indicates the level of salinity, more the electrical conductivity more is the salinity level of soil. The historical importance of Indian Cow and her effective utilization of panchgavya (mixture of urine, milk, ghee, curd and dung of Indian Cow) and individual products mentioned in various vedic book like Bhagwat Geeta, Mahabharat,etc was studied which was suggested by the known holly persons who were using cow dung as a medicine ,as a thermal insulator, as a plaster, flooring etc. The experimental observation showed that there is a effective decrease in soil salinity level. So, utilization of cow dung helps in improvement of soil properties and protection of environment as a whole.

Keywords— Industries, population, ecosystem, polluting, Indian Cow dung, electrical conductivity, salinity, panchgavya, Bhagwat Geeta, Mahabharat, insulator, flooring.

INTRODUCTION

The land, ground water and surface water all are very important in maintaining ecosystem and if any one of them is polluted it's pollutes the environment. Now suppose land is polluted with some pollutants like pesticides than it is further consume by plants which in turn consumed by animal and human being thus entering the ecosystem which will further introduce problem of decrease in immunity of human being. Hence due to decrease immunity chances of people being affected by diseases increases and for that best example is that of Bhopal gas tragedy. In this tragedy methylisocyanate (MIC) gas was released which was toxic in nature which kills many peoples. [1]

If we live in peace and harmony with nature the nature will give us positive result. For example with the organic fertilizers soil fertility also increases but also various other properties of soil like water holding capacity, porosity, softness, etc increases for longer duration but with chemical fertilizer productivity is high but quality of food grains, fruits, etc is less as compared to organic fertilizers applied soil. So human activities motives should have consideration for environment protection also which will have good result in future for future generation. For example for treating any polluted medium the treatment should consider maximum portion of bioremediation as it not only helpful for protection of environment but also helpful for maintaining ecosystem. [2]

Cow dung is very helpful as micro organisms present in Cow dung are helpful for decreasing the value of total petroleum hydrocarbons and also helps in improving the soil properties like pH and electrical conductivity. This technology not only decreases the amount of pollutants in soil but also helpful in increasing nutrients of soil as well as helpful in enhancement of soil properties like water holding capacity, softness etc for enhances growth of plant. [3]

Panchgavya meaning mixture of mixture of urine, milk, ghee, curd and dung of Indian Cow. It is used for treatment of diseases like cancer, skin diseases, etc. [4]

Finally it can be said that cow plays important role in protection of environment.

LITERATURE REVIEW

Indian cow is of great importance in Indian society. Indian cow is considered as holy since ancient time. Its dung is known as best manure and best soil fertilizers throughout the world. Indian Cow has been considered as symbol of wealth since ancient time. The crop grown in soil which has used cow manure have high yield and have better quality grains as compared to artificial manure. In this research property of soil was checked before and after adding of cow dung.

P. Agamuthu, Y.S. Tan, S.H. Fauziah (2013): Have discussed that the cow dung can play an important role in treatment of soil polluted with lubricant oil and concluded that bioremediation can play an important role in treating soil polluted with petroleum hydrocarbon. [5]

Uwumarongie-Ilori, E.G Aisueni N.O, Sulaiman-Ilobu, B.B ,Ekhator, F. Eneje, R. C. and Efetie-Osie, A. (2012): They have discussed that in cases of metal contamination ,accumulation of heavy metals from regular application of inorganic fertilizer to soils cultivated with oil palm, cow dung can be used to immobilize the heavy metals in the contaminated soil. [6]

K. Prapagar, S.P. Indraratne and P. Premanandharajah (2012): The study revealed that addition of gypsum and organic amendments (CD, PH) acted as ameliorant to saline-sodic soils. It also revealed that individual or combined effect of gypsum and simple leaching was more effective in changing EC and SAR. Gypsum application in combination with organic amendments improved the soil chemical properties by reducing the EC, SAR (Sodium Adsorption Ratio) and pH, than the applying gypsum alone. [7]

P. M. V. Subbarao and V. K. Vijay: They have discussed the importance of cow dung in production of biogas which can be used for running vehicles after removing carbodioxide from biogas.[8]

Now days living creature's likes animals, birds, etc are on the verge of extinct which helps in maintaining the ecosystem. For example cows which plays very important role in protection of environment as they feed on the dry and wet both grasses and helps in solid waste management. They also provide with milk, and from that milk ghee, curd, etc are produced which provide the human being with good variety of food.

MATERIALS AND METHODS

Soil samples, salt, distilled water, pH meter, fresh cow dung, electrical conductivity instrument, chemical required for testing pH and electrical conductivity of soil and plastic samples bottles were required for doing experiment.[9] Samples were collected from five different location as stated below

1) Market Yard Cut Section Position 2 (MYCS2).
2) Coarse Soil Wanawadi Region (CSWR).
3) College Campus Tekdi (CCT).
4) Kondhwa Hospital (KH1).
5) Juhu Beach, Mumbai.

From five different location soil samples were collected and out of that samples 2 kg each soil samples were taken and stored in plastic pot, than in each samples salty water was added and finally cow dug was added and soil was tested for pH and electrical conductivity and in this method pH and electrical conductivity was tested before adding pollutants, after adding pollutants and after addition of cow dung.

Figure 1: Plastic Pot Containing Market Yard Cut Section Position 2 (MYCS2) Soil.

Figure 2: Plastic Pot Containing Coarse Soil Wanawadi Region (CSWR) Soil.

Figure 3: Plastic Pot Containing College Campus Tekdi (CCT) Soil.

Figure 4: Plastic Pot Containing Kondhwa Hospital (KH1) Soil.

Figure 5: Plastic Pot Containing Juhu Beach, Mumbai Soil.

RESULT AND DISCUSSION

In this initial soil ph and electrical conductivity test of 5 different soil samples was noted pH meter and electrical conductivity meter. It was found that electrical conductivity of soil samples was very less and after addition of salty water pH of each soil samples decreases slightly but rise in electrical conductivity of each soil was very high. But after the addition of 400gram cow dung there is slight increase in Ph and there is drastic decrease in electrical conductivity of soil samples and that can be easily understood from graph shown below, which is good for any type of soil. As we know that electrical conductivity is high that means excess salt is present which retard plant growth and also retards microbiological activities in soil which support plant growth. So on addition of cow dung there is a decrease in electrical conductivity which shows good sign for treatment by cow dung of moderately saline soil.[10]

Samples From 5 different location			
Initial ph and Electrical conductivity of soil			
Sr.No	**Sample Name**	**Ph**	**EC(Ms/cm) milliSiemens / centimeter**
1	MYCS2	7.02	0.058
2	CSWR	7.15	0.128
3	CCT	7.2	0.368
4	KH 1	7.84	0.147
5	JUHU BEACH	8.75	1.79

Table no 1: Samples from 5 different location with Initial ph and Electrical conductivity of soil

Samples From 5 different location
ph and Electrical conductivity of soil after addition of 200 ml salty water (1000ml dw +100g salt)

Sr.No	Sample Name	Ph	EC(Ms/cm) milliSiemens / centimeter
1	MYCS2	7.02	6.55
2	CSWR	7.26	5.59
3	CCT	7.11	6.07
4	KH 1	7.47	6.44
5	JUHU BEACH	8.4	7.51

Table no 2: ph and Electrical conductivity of soil samples with salty water added

Samples From 5 different location				
ph and Electrical conductivity of soil after addition of 400g cow dung				
Sr.No	**Sample Name**	**Cow Dung Added(gram)**	**Ph**	**EC(Ms/cm) milliSiemens / centimeter**
1	MYCS2	400	7.56	5.03
2	CSWR	400	7.35	5.21
3	CCT	400	7.31	5.43
4	KH	400	7.61	5.16
5	JUHU BEACH	400	8.56	5.23

Table no 3: ph and Electrical conductivity of soil samples after addition of 400g cow dung

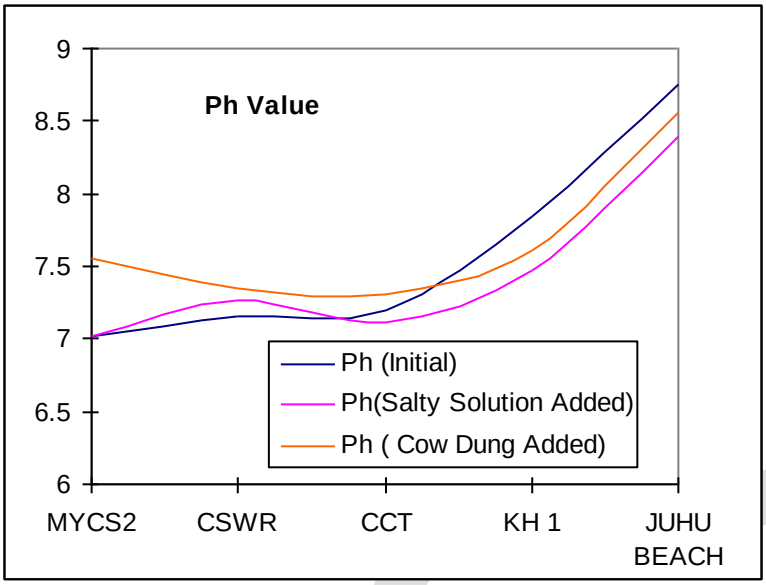

Figure 6: Chart showing effect on pH of 5 different soil samples before polluting, after polluting and after treating.

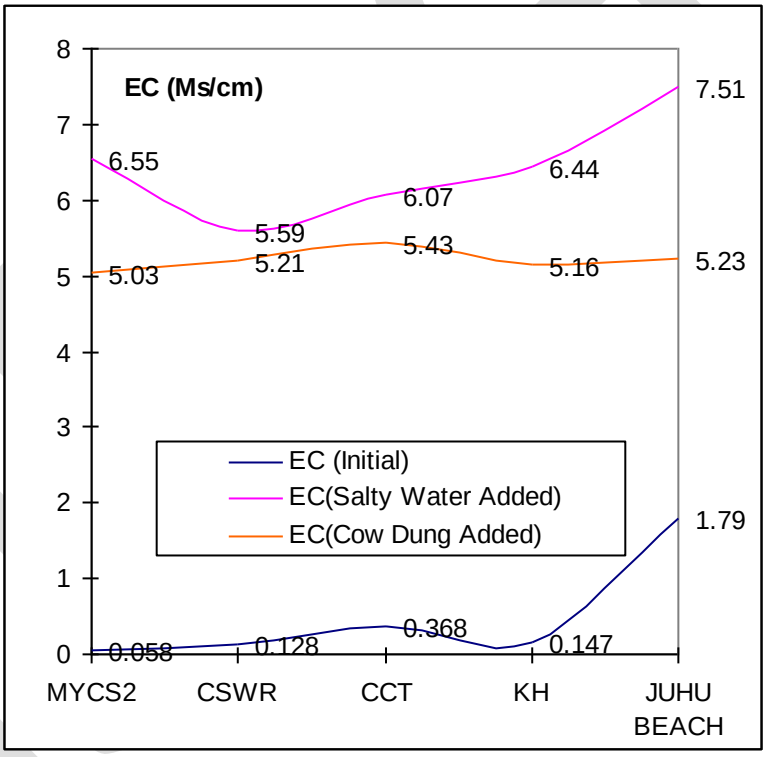

Figure 7: Chart showing effect on electrical conductivity of 5 different soil samples before polluting, after polluting and after treating.

IMPORTANCE OF COW FROM VEDIC SCRIPTURES.

Krsi-go-raksya-vanijyam vaisya-karma svabhava-jam

The Supreme Personality of Godhead has instructed in the Bhagavad Gita, "Farming, Cow Protection & Trade are the natural work for the vaisyas. - Bhagavad Gita (18.44). This worse states it is the duty of business class people and farmers to protect cow which is said by the Supreme Personality of Godhead.[11]

Obstructing provision of water to thirsty cows should be considered equal to the sin of killing Brahmins which is stated in Mahabharata, Anushasana Parva 24-7 which convey us that if we are not providing water to thirsty cow than it will be equal to the sin of killing of Brahmins or holly person. [12]

CONCLUSION

From the above research it can be concluded that cow dung helps in reduction of salinity of moderately saline soil and also provides nutrients to the polluted soil which is the noble method for treatment of saline soil. The research work presented here comprises literature review on importance of cow dung used for treating polluted soil, and its uses in civil industry as a construction material. During above research work it was found that people immunity is decreasing day by day and number of diseases in present scenario is increasing as crops grown in artificial fertilizer and chemical pesticides used for pest control lead to pollute soil and carcinogenic pollutants present in pesticides enters the plant which are ultimately consumed by people. In interviewing one farmer it was found that crops grown in chemical fertilizers decayed fastly as compared to crop grown in cow dung fertilizers. These chemical fertilizers when used in excess lead to pollution of river which is called eutrophication and groundwater also get polluted. So there is need for organic treatment and not chemical treatment .So bioremediation methods should be explored Indian cow is of great importance in Indian society and is considered as holy since ancient time. Its dung is known as best manure and best soil fertilizers throughout the world. Indian Cow has been considered as symbol of wealth since ancient time. The crop grown in soil which has used cow manure have high yield and have better quality grains as compared to artificial manure. The cow dung remediation for polluted soil is not only beneficial to farmers but also beneficial to that those people who want to live in harmony with nature. It is an eco-friendly method of treatment which is cheaper one. Cow dung is used for biogas manufacturing, plastering, sacred ceremonies, etc.

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