STUDIES ON CHARACTERISTICS OF A DAIRY WASTE WATER

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ABSTRACT

Identification of Dairy Industry as it's the most polluting food industry in terms of large amount of water use and also dairy industry have shown tremendous growth in recent years across the world. Characteristics of waste water like Physical- turbidity, color, odor. Chemical - chemical oxygen demand, nitrogen, ph. Biological - microbial, oxygen required for nitrification, Bod. Studies on the performance of effluent treatment by collecting samples. Studies on improvement of treatment or the modification of treatment by low or economical or low-cost methods. Industrial waste management is nowadays one of the main issues for ensuring a sustainable environment. Dairy waste management in particular, is very crucial in view of the high organic matter and high nutrient levels contained in dairy effluents. Dairy waste can be effectively treated either with aerobic or anaerobic processes. The main advantages of the former consist of low yield, high kinetics, pathogen free product, and high temperature operation whereas the latter is a simple, low budget and conservative technology. Occasionally, pre-treatment strategies (i.e. wetlands) are required in order to improve the efficiency of treatment methodology. Wetlands are a promising technology applied in order to remove the greater part of nutrients and minerals contained in milk-based products.

Keywords: *Effluent, Conservative, Nitrification, Organic, Turbidity, Anaerobic, Pathogen.*

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1. FIELD STUDIES:

Kolar Dist. Cooperative Milk Producer's Societies Union Ltd., (KOMUL) is Karnataka's highest Milk Producing District Organization. It is a District level apex body of milk cooperatives in Karnataka, which aims to provide remunerative returns to the farmers by eliminating the middlemen and also serve the interest of consumers by providing quality Milk & milk products, which are good value for money. Once the Dist. was named as Land of Gold & Silk, is making inroads in Quality Milk Production. It is KOMUL first installed " Bulk Milk Coolers & Community Milking Machines " at Society level in the state of Karnataka to get the quality milk required for UHT milk packed at Kolar Dairy under the brand name of Nandini 'Good-Life '.Presently Union has full pledged dairy at Kolar with an installed capacity of 2.0 LLPD, and three chilling centers at Chintamani, Sadli, & Gowribidnur with 1.0 LLPD capacity each respectively. KOMUL started marketing of liquid milk in polythene sachets in entire Kolar District and parts of Bangalore City since 1994. The Mnemonic Symbol of NDDB was adopted by the Union from April' 2002 to market the liquid milk. The custom packing of Set Curds production was undertaken for GCMMF under the brand name of Amul Masti-Dahi during Aug'2001.*In addition to this Union is supplying entire need of milk to Mother Dairy, Bangalore directly from the Chilling Centers. The excess milk after the sales will be sent for conversion to Product Dairies at Mandya and Dharwad; very recently to Mother Dairy, Bangalore.*

SHARE CAPITAL

Union started with a Share Capital of Rs.8.56 Lakhs, which was transferred from Bangalore District Milk Union. The Share Capital of the Union as on 2015-16 is Rs.3408.9 Lakhs.

Membership:

Union was started in the year 1987 with 460 functional DCS, as at the end of April – 2021 Union has 2195 Registered Dairy Co-operative Societies and Commissioned 2185 DCS, of which 1892 DCS are functional. Total Members enrolled are 2,97,813 of which 1,00,647 are Small Farmers, 1,00,578 are Marginal Farmers, 54,868 are Agri Labourers, 41,720 are Others. 78,793 are Women Members 46,530 are Schedule Caste 30,396 are Schedule Tribe, and 1807 are OBC members.

1.1 SITE LOCATIONS OF SAMPLES COLLECTED

https://goo.gl/maps/1oA2PkV4Hom1w1h2A

2. LAB WORK AND ANALYSIS

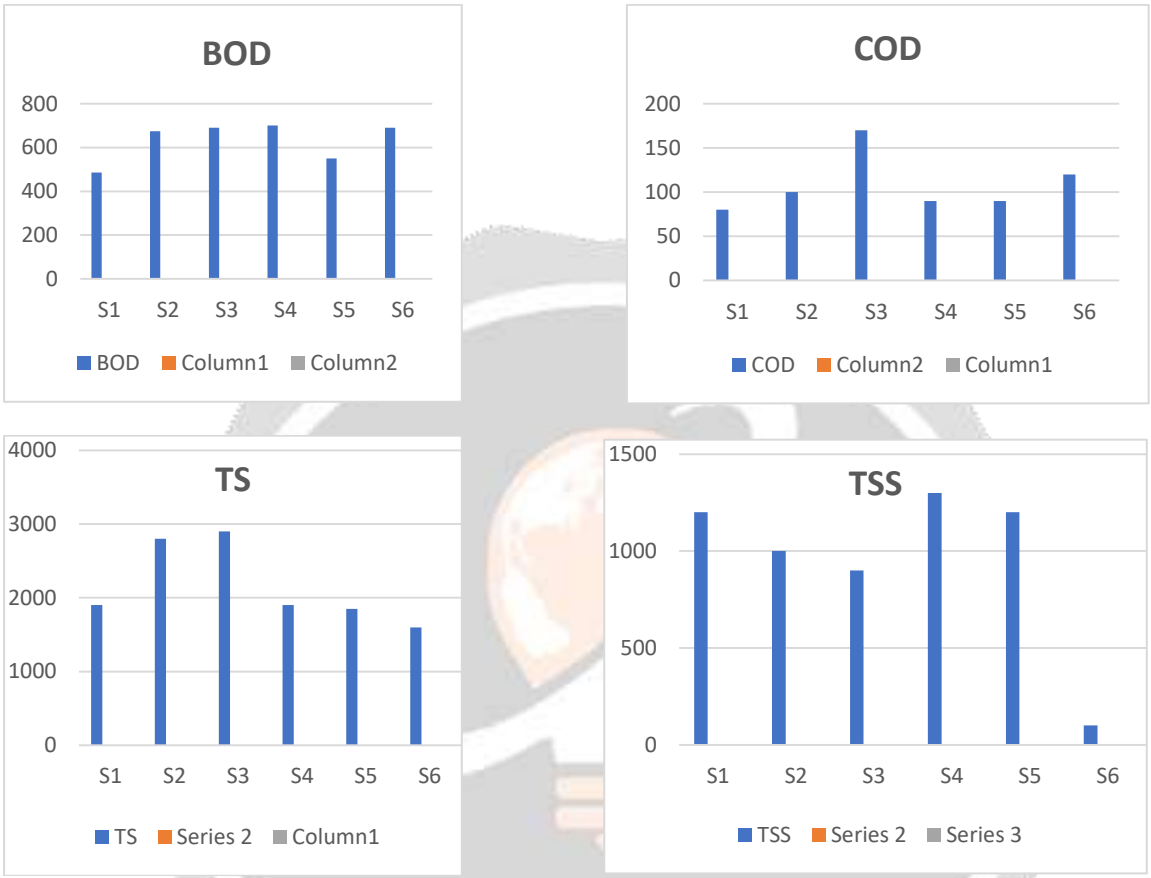
This chapter briefly presents the results of the sampling and analysis of samples. Samples collected were tested for different parameters and obtained the following results.

CHARACTERISTICS OF DAIRY EFFLUENT

Parameter	pH	BOD (mg/l)	COD (mg/l)	TDS (mg/l)	TSS (mg/l)	TS (mg/l)	Chloride (mg/l)	Sulphate (mg/l)
influent	12.5	485	80	1700	1200	1900	500	600
influent	11	675	100	1800	1000	2800	500	700
influent	10.5	690	170	2000	900	2900	540	640
influent	12.5	700	90	1600	1300	1900	480	640
influent	10	550	90	1650	1200	1850	510	700

influent	10.5	690	120	1500	100	1600	410	850

For better understanding bar graphs have been plotted from the obtained test results with x axis indicating samples (S1, S2, S3, S4, S5, S6) and y axis indicating concentration in (mg/l)



3. DISCUSSION

Obtained test results were compared with the water quality standards [IS 10500 (2012)].

From the studies it is found that ph. of collected samples are very high and basic in nature exceeds the permissible limit. Biochemical Oxygen demand is outside the limit compared to the standard permissible limits. Chemical Oxygen demand is moderate. Total suspended solids in S1,S2,S3,S4,S5 are outside the limit and S6 is within the limits. Total dissolved solids and Total solids are too high in the effluent. Chloride and Sulphate in all the samples exceed the permissible limits.

4. CONCLUSION

- *KOMUL is one of the Big Dairy Industry which lacks the systematic management and proper treatment of waste water.*
- *From the lab studies and analysis it is found that the treated waste water from the dairy is unfit for the irrigational activities.*
- *The parameters such as BOD, COD, TSS, TS, pH etc, show the major pollution and contamination of water in the Dairy Industry, hence it is unfit for Irrigation purposes.*

- *The surrounding area near KOMUL is quite good , the industry need to take utmost care and safety to irrigate the lands outside with a good treated water and adopt some modern methods for the purification of waste water.*

5. REFERENCES

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