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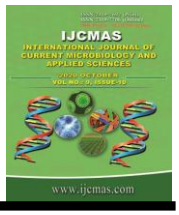

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# Physico-chemical Characteristics of Effluents of M/s ITC Ltd. PSPD, Sarapaka, Bhadrachalam, Telangana

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**A B S T R A C T**

In this study Physico- Chemical parameters of the untreated effluent and treated effluents of M/s ITC Ltd., Paperboards Specialty Papers Division, Bhadrachalam, was taken up. On analysis of the samples, it is observed that the Physico- chemical parameters which are in higher levels initially get reduced on the biological and chemical treatment at the effluent treatment plant of the unit. These treated effluents with the lower levels of the above said Physico- chemical parameters arising from the effluent plant are thus an important source of rich nutrients for the cultivation of agriculture and aquaculture.

## Introduction

Pulp and paper industry is one of the largest industries in our country and is one of the major water consumers. Most of this water is discharged back in to the streams and rivers etc.

The waste water disposal from the pulp and paper industry has already become increasingly an important problem in our country. The waste water discharge make the watercourses (water bodies) polluted depending upon the quantum / quality of pollutants discharged.

M/s Bhadrachalam paper boards (now known as M/s ITC Ltc. PSPD) which was established in 1979, is a large-scale paper and paper board manufacturing unit, located at Sarapaka village, near Bhadrachalam in Khammam district of Andhra Pradesh. The only source of water supply to the industry is from river Godavari.

The wastewater also gets discharged from the pulp and paper unit after a through process of effluent treatment, which is in several phases (primary and secondary treatments) before releasing back into the river Godavari.

In the present study, the effluent samples were analysed before and after treatment for various parameters like pH, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Sulphates, Chlorides, Color, Alkalinity, Hardness, Nitrates, Oil and Grease etc.

## Materials and Methods

Several periodicals samples of the effluents and the treated effluents are collected and are analyzed by standard procedure (as per the Manuel of MITCON, 2003, Shinde *et al*., 1997), in the Central laboratory and Pragathi Labs and Consultants Pvt. Ltd., Hyderabad (Recognised by Ministry of environment and forests, Government of India).

## Results and Discussion

Various parameters are introduced due to the manufacturing process or pulp and paper industry. The results obtained from the treated and untreated effluents are given in the above mentioned table. All the values of parameters except pH of untreated effluent get reduced after the chemical and biological treatment at the effluent treatment plant and the resultant effluents are in coincidence with the parameters mentioned in the reports of Dharma *et al.*, The pH of untreated effluent is acidic and after treatment at ETP it becomes neutral. All the parameters of treated effluents appear to be suitable for the cultivation of Agriculture and Aquaculture (Table 1).

**Table.1** Various parameters of untreated and treated effluents

| Sl. No. | Parameters effluent (Mg / lt) | Untreated effluents (Mg / lt) | Treated |
|---|---|---|---|
| **1.** | pH | 6.4 – 6.8 | 6.8 – 7.2 |
| **2.** | COD | 800 – 1200 | 140 – 170 |
| **3.** | BOD | 190 – 250 | 24 – 26 |
| **4.** | TSS | 700 – 1200 | 60 – 80 |
| **5.** | TDS | 800 – 1400 | 1300 – 1400 |
| **6.** | Sulphates | 400 – 500 | 140 – 150 |
| **7.** | Chlorides | 200 – 300 | 180 – 200 |
| **8.** | Alkalinity | 300 – 350 | 200 – 250 |
| **9.** | Hardness | 180 – 250 | 120 – 200 |
| **10.** | Nitrates | --- | 30 – 35 |
| **11.** | Color | 252 – 400 pc unit | 150 – 200 pc unit |
| **12.** | Oil and Grease | 7 – 8 ppm | 4 – 5 ppm |

This present study undertaken at M/s ITC Ltd., PSPD infers that the discharged wastewater / treated effluent is an important source of rich added nutrients for carrying out agricultural operations / aquaculture in the vicinity of the unit and appears to be in the guidelines set by the A.P. Pollution Board while protecting the environment.

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