

BIODEGRADATION OF VINASSE FROM SUGAR CANE BY FUNGUS D

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Summary:

The need to reduce the burning of fossil fuels has increased the interest in ethanol. Furthermore, ethanol production generate as waste vinasse in the ratio of 10 to 15 times per liter of ethanol produced. By the impacts associated with the use of vinasse seeks to investigate an effective method to reduce its toxic potential.

Keywords: Vinasse; Biodegradation, Reuse water.

INTRODUCTION

Brazil is a world leading role in the biofuels sector. One of the biggest impacts of the sugarcane industry are the waste generated, which can cause serious damage to the environment. Are generated around 15 liters of vinasse for the production of 1 liter of ethanol (GRANATO,2003).

This study aims to investigate the feasibility of vinasse biodegradation from industrial process of the ethanol industry by Fungi D.

METHODOLOGY

To evaluate the biodegradation potential of vinasse was used a consortium of fungi, which are being identified. Spore suspensions were inoculated into 3 different concentrations - control (PDA medium), 25 and 100% of vinasse, and placed in refrigerated incubator orbital shaking. The pH of the vinasse sample was initially adjusted to 5.5.

The degradation of vinasse was monitored by evaluating of the color removal, the organic loading and turbidity.

RESULTS

After 7 days of incubation of vinasse with D fungus was observed a similar growth of fungus, as shown in Table 1 for the 25 and 100% media. This result indicates that the growth of fungal mass apparently independent of the cultured media. Concurrently, was observed an increase in pH after the biodegradation period, and the final pH measured was 9.27. This result can characterized degradation processes of organic species, such as carboxylic acids present in the vinasse.

Table 1. Evaluation of biodegradation of biologically treated vinasse.

Concentration(%)	COD Removal(%)	Colour Removal (%)	Conductivity Removal(%)	Growth the fungal mass (g)
25	38	51.5	32,0	37,0
100	50	21	26,5	35,0

There was a reduction in conductivity, color and COD values, as shown in Table 1. The reduction of the values of these parameters also corroborate with the hypothesis of biodegradation of vinasse by the Fungus D.

CONCLUSION

Possible to observe promising results for the use of the biodegradation system proposed for color removal and degradation of the organic load of vinasse.

REFERENCES

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