



Removal of Heavy metals in cassava mill effluents by *Saccharomyces cerevisiae* isolated from palm wine

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Introduction: Nigeria produces about 20% of global cassava output. Cassava processing in Nigeria is predominantly carried out by small holders that use rudimentary equipment for its processing into several products such as high quality cassava flour. The heavy metals characteristics of the wastewater (cassava mill effluents) often exceed the limits for effluents discharge onto land and surface water as specified by Federal Environmental Protection Agency (FEPA). Cassava mill effluents induce toxicological effects on the environment and its associated biota including humans, fisheries, flora and fauna.

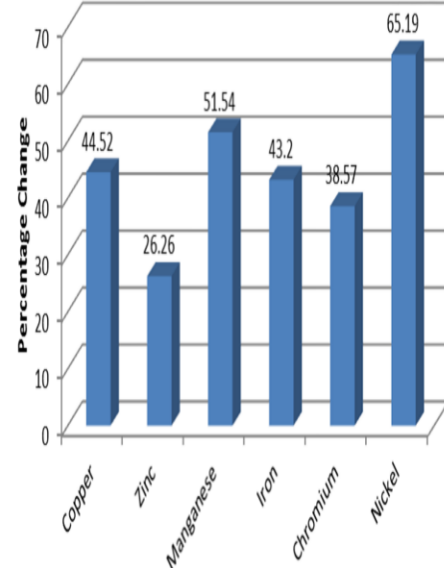
Aim: This study assessed the ability of *Saccharomyces cerevisiae* isolated from palm wine to remove heavy metals in cassava mill effluents.

Materials & Methods: The *S. cerevisiae* was identified using conventional microbiological techniques based on their cultural, morphological and physiological/biochemical characteristics. 10 ml of *S. cerevisiae* was inoculated into the sterile effluent and incubated for 15 days. The samples were prepared and analyzed using flame atomic adsorption spectrophotometer.

Results and Discussion: Results showed a decrease of 44.52%, 26.26%, 51.54%, 43.20% and 65.19% for copper, zinc, manganese, iron and nickel respectively. The ability of the *S. cerevisiae* to degrade the heavy metals suggests that they have the tendency to withstand adverse extreme stressful conditions and could change their survival strategies in heavy metal laden environment through tolerance, metabolism and detoxification. In addition, *S. cerevisiae* could use some other chemicals as source of energy especially in the absence of nitrogen and carbon source.

Conclusion: The treatment of the cassava mill effluent by *S. cerevisiae* often reduces the heavy metals to specified limit by FEPA for effluents to be discharged into the environment. Therefore, this study showed the possibility of treating cassava mill effluents using *S. cerevisiae*.

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Percentage change in in some selected heavy metal parameters of cassava mill effluents after 15 days of treatment with *S. cerevisiae*