



## COCONUT HUSK AND SUGAR CANE BAGASSE MIXTURE AS SOURCE OF BIOETHANOL

**LOVELY JENNEVIVE P. ACLAN<sup>1</sup>, GENE PAULO B. AGENA<sup>2</sup>, ISABELLA SOFIA A. AGITO<sup>3</sup>, ELMERSON JENZI B. AGONCILLO<sup>4</sup>, DR. JED C. TOLENTINO<sup>5</sup>**

<https://orcid.org/0000-0002-6690-3056><sup>1</sup>, <https://orcid.org/0000-0001-9599-536X><sup>2</sup>,  
<https://orcid.org/0000-0002-4727-4741><sup>3</sup>, <https://orcid.org/0000-0002-7422-6243><sup>4</sup>,  
<https://orcid.org/0000-0002-0863-0205><sup>5</sup>

20-06174@g.batstate-u.edu.ph<sup>1</sup>, gbagena@up.edu.ph<sup>2</sup>, 20-04297@g.batstate-u.edu.ph<sup>3</sup>,  
agoncillojenzi@gmail.com<sup>4</sup>, jed.tolentino@g.batstate-u.edu.ph<sup>5</sup>,  
Batangas State University, Batangas City, Philippines<sup>1,3,5</sup>, University of the Philippines Los  
Banos, Philippines<sup>2</sup>, Lyceum of the Philippines University Batangas, Philippines<sup>4</sup>

### ABSTRACT

Population growth and the increasing demand for raw materials have led to a major consumption of coconuts and sugarcane to supply local minor and large food industries. The Philippines being the country with abundant agricultural land annually produces tons of wastes coming from agricultural crops. With the focus of reducing the adverse effects of these wastes, this study aims to combine coconut husk and sugarcane bagasse to produce second-generation (2G) bioethanol through the use of *Saccharomyces cerevisiae* extracted from baker's yeast and commercial cellulase (400U/mL) as enzyme for the Simultaneous Saccharification and Fermentation (SSF). The two substrates were mixed following three sets of proportions (15:85, 50:50, and 85:15) to find which will have the highest ethanol yield before it was alkali pre-treated with 3% NaOH for 90 minutes at 121 degrees Celsius. In this study, the quantitative research approach was used specifically the experimental research design to gather and analyze the data. This method was used to determine the effect of different proportions of coconut husk and sugarcane bagasse in the production of bioethanol. One-way ANOVA, Bonferroni Test, and independent t-test were used in the statistical treatment and analysis of data. The result of this research study indicated that there are no significant differences between the different proportions of the two biomasses. The result indicated that the proportions used in this study are not necessary for the production of bioethanol.

*Keywords: Bioethanol, Life Science, Philippines*