

BALINGIT, ALYSTER M., and BAUTISTA, KRISTEL ANNE R.,
Department of Agricultural and Biosystems Engineering, Tarlac Agricultural
University, Malacampa, Camiling, Tarlac, May 2022, **EXTRACTION OF ROTTEN
BANANA WASTE AS POTENTIAL SOURCE FOR BIOETHANOL.**

THESIS Adviser: **LEONELL P. LIJAUCO, Ph.D.**

Most nations are facing two major challenges, energy crisis, and proper waste disposal. Living in one of the countries which export a huge volume of bananas can be a challenge because bananas spoil in 2-3 days. On the other hand, there is a high demand for bioethanol. Spoiled bananas are already considered waste. To address this, it is better if bioethanol is made from low-cost raw materials. With aim of minimizing waste from bananas and contributing to energy conservation, the researchers determined if extracted rotten banana waste is a potential source of bioethanol.

The factor used were the varieties of banana (Lakatan, Latundan, and Saba) and days of fermentation (3 days, 6 days, and 9 days). Each treatment was replicated three times. All the data gathered were tabulated and statistically analyzed using Analysis of Variance of the Two-Factorial Completely Randomized Design and treatments were compared using the Duncan's Multiple Range Test (DMRT).

The highest yield of bioethanol production was observed in 3 days of fermentation of Lakatan with 136 mL. However, the best combination of high-quality bioethanol is the 6 days fermentation of Lakatan because it has the highest alcohol content of 41.33% and the longest time of flame observed for 19.80 s. The return on investment in the extraction of rotten bananas to make bioethanol is 41.6%.

