# SCREENING OF LACTIC ACID BACTERIA AS STARTER CULTURE FOR COFFEE FERMENTATION

Undergraduate Thesis
Submitted to the Faculty of the
College of Arts and Sciences,
Cavite State University,
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Biology



**JERELYN L. GUABLAS**
June 2019

# ABSTRACT

**GUABLAS, JERELYN L. Screening of Lactic Acid Bacteria as Starter Culture for Coffee Fermentation.** Undergraduate Thesis, Bachelor of Science in Biology, College of Arts and Sciences, Cavite State University, Indang ,Cavite, June 2019 Adviser: Dr. Ma. Fatima I. Cruzada

This study was conducted to screen lactic acid bacteria isolated from fermenting coffee beans as starter culture for coffee fermentation. Characterization was based on the ability to utilize various sugars, tolerate high salt concentration, grow in wide range temperature, produce high amount of lactic acid, produce aroma and inhibit other microorganisms.

A total of 80 lactic acid bacteria strains were isolated from fermenting Robusta coffee. All were Gram positive, catalase negative and aerotolerant organisms. The isolates can utilize glucose, fructose, sucrose and galactose producing varying amount of acids through either homofermentation or heterofermentation. They can grow at wide range temperatures (10-45°C) and high salt concentration (4 percent NaCl, with some up to 6.5 percent). They can metabolize arginine and citrate which are important in flavor development in fermented products. All isolates were able to lower the pH within 4 hours and acid production continued upon further incubation. The highest amount of lactic acid after 24 hours of incubation was produced by the isolate NR053. All isolates were able to inhibit the growth of other microorganisms. Among them, isolates NR053, NR055, NR058, NR095, NR101 and NR110 were selected as potential starter cultures for coffee fermentation.

# TABLE OF CONTENTS