DETECTION AND MONITORING OF COLIFORM IN DRINKING WATER SYSTEM USED IN BARANGAY MATIAS, TALAVERA, NUEVA ECIJA AND ITS ANTIBIOTIC SENSITIVITY PROFILES

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The Undergraduate Thesis entitled **DETECTION AND MONITORING OF COLIFORM IN DRINKING WATER SYSTEM USED IN BARANGAY MATIAS, TALAVERA, NUEVA ECIJA AND ITS ANTIBIOTIC SENSITIVITY PROFILES** prepared and submitted by **FRINZ NATHANIEL M. CAPURAS** in partial fulfilment of the requirements for the degree of **BACHELOR OF SCIENCE IN BIOLOGY (MICROBIOLOGY)** is hereby accepted.

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The name of the researcher is Frinz Nathaniel M. Capuras. Frinz is 22 years old. He is born on October 31, 2000 in Talavera, Nueva Ecija. He is currently residing in Barangay Matias, Talavera, Nueva Ecija. Frinz studied primary education in Talavera Central School, Secondary in Talavera National High School, and Senior high at Talavera Senior High School. He is a consistent honor student from elementary to senior high.

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ABSTRACT

CAPURAS, FRINZ NATHANIEL M., Department of Biological Sciences, College of Science, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JULY 2023, DETECTION AND MONITORING OF COLIFORM IN DRINKING WATER SYSTEM USED IN BARANGAY MATIAS, TALAVERA, NUEVA ECIJA AND ITS ANTIBIOTIC SENSITIVITY PROFILES**

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Access to clean water is a basic human right and is essential for the survival of living organisms. Water also serves as a vehicle for the transportation of microorganisms, including human-associated bacteria. The study aimed to detect the presence of coliform bacteria in ten drinking water samples obtained from tap and manual water hand pumps. The results revealed that all tap water samples, tested negative for coliform detection, except for one sample which is utility water 4. In contrast, all samples from manual hand pumps tested positive for coliform, except for one sample which is ground water 3. Further analysis indicated that four out of the five samples that are tested to be positive for coliform contained the indicator organism, *Escherichia coli*, while ground water 2 did not. Antimicrobial susceptibility testing of the *E. coli* isolates showed that all were resistant to at least one antimicrobial, except for the isolate from ground water 1, which exhibited multidrug resistance to five antimicrobials. These findings provide valuable data for assessing and addressing water potability issues associated with manual hand pumps, and emphasize the importance of continuous monitoring of tap water quality. All of the water from the sampling sites tested are potable, except for the locations where the presence of coliform was detected.

Keywords: antimicrobial susceptibility testing; coliform; drinking water

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