

UNIVERSITI TEKNOLOGI MARA

**EVALUATING MICROBIOLOGICAL QUALITY OF
DIFFERENT KITCHEN EQUIPMENT AT
DIFFERENT FOOD PREMISES**

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ABSTRACT

Foodborne disease is the most serious public health problems that often threaten life. Foodborne disease is more common to high-risk groups including pregnant women, small children, older people, and those with poor immune systems. Foodborne illness or disease caused by the spoilage of infected food, viruses, food-contaminating parasites and most generally from pathogenic bacteria. Pathogenic bacteria such as *E.coli*, *Salmonella* and *Staphylococcus aureus* are the most prevalent. Pathogenic bacteria come from different sources such as consuming raw and uncooked eggs, undercooked poultry and meat, infected raw fruits and vegetables, raw milk, on healthy people and animals' skin, throat, and nostrils. As kitchen sponge becomes popular in every household for the cleaning of kitchen appliances, previous study has recorded that pathogenic bacteria grow on cooking appliances such as sponge, and utensils can be transferred into food. Our study is divided into three different types of food premises which are school canteen, restaurant and food court to target different ages and different groups. The study aims at measuring the growth of pathogenic bacteria in the kitchen sponge, identifying the presence of bacteria in the kitchen cutleries and measuring the efficacy of detergent use. The study found that school canteen recorded the highest growth of *Salmonella* (4 log₁₀ cfu / ml), *E.coli* recorded the highest growth for restaurants (4 log₁₀ CFU / ml), while food courts were contaminated with *S.aureus* (5.14 log₁₀ CFU / ml). All food premises have recorded presence of pathogenic bacteria on kitchen cutleries except in R2 premise. The efficacy of the detergent also tested concludes that DSC1 is the most effective against selected bacteria in school canteen, DR1 in restaurant and DFC3 in food court. The findings in this study show that pathogenic growth of bacteria can offer a higher risk of developing foodborne disease to different ages.

Keywords: *Kitchen sponges, pathogenic bacteria, foodborne disease*

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Food is a basic need and an essential part of everyone's life. According to Food Act and Regulation 1985, food includes *“every article manufacture, sold or represented for use as food or drink for human consumption or which enter into or is used in the composition, preparation, preservation of any food or drink and includes confectionery, chewing substances and any ingredient of such food, drink, confectionery or chewing substances”*. The food that humans consume must be safe and nutritious to ensure the intake of necessary nutrients. An access to sufficient amount of safe and nutritious food is the key to promoting good health.

Food safety refer to handling, preparing and storing food in a best way to reduce the risk of contamination and the risk of individual getting a foodborne illness (Santacruz, 2016). The application of several approaches such as thoroughly cleaning and sanitizing the surface, equipment and utensil that comes into contact with either raw food or cooked food. Raw food or ready to eat food must be stored or chilled correctly according to the suitable temperature, environment and equipment based on the food.

In the domestic environment, the kitchen is particularly important in spreading infectious diseases (Alwakeel, 2007). The process of cleaning and sanitizing the kitchen equipment plays an important part in sustaining the hygiene and safety of the food. Kitchen sponges are the common tools used to clean kitchen utensils such as plate, spoon, pots and others.