

UNIVERSITI TEKNOLOGI MARA

**DETECTION OF *Salmonella enterica* SEROTYPE
TYPHIMURIUM DT104 IN CHICKENS MEAT**

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This Final Year Project Report entitled “**Detection of *Salmonella enterica* serotype Typhimurium DT104 in Chickens Meat**” was submitted by Nadia Binti Jasmi, in partial fulfillment of the requirement for the Degree of Bachelor of Science (Hons.) Medical Technology in the Faculty of Health Science, and was approved by

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ABSTRACT

DETECTION OF *Salmonella enterica* serotype Typhimurium DT104 IN CHICKENS MEAT

An increase in the prevalence of *Salmonella enterica* serotype Typhimurium DT104 has been reported worldwide. *Salmonella enterica* serotype Typhimurium is recognized as a significant of human pathogen. These organisms are often resistant to five or more antimicrobial agents namely ampicillin (A), chloramphenicol (C), streptomycin (S), sulfonamides (Su), and tetracycline (T) –the characteristic resistance (R) type ACSSuT. In addition, reporting of resistance to fluroquinolones or extended-spectrum cephalosporins is also increasing annually. This study examined the detection of this *Salmonella* serogroup B isolates in chicken meat as well as determined the antibiotic resistance pattern. A total of 20 chicken meats were obtained from wet market in the vicinity of Petaling Jaya. Of these, 4 (20%) of the isolates were identified as *Salmonella* spp. isolates. These isolates were tested by a conventional culture method and resistance patterns to four antibiotics namely ampicillin, chloramphenicol, tetracycline and ciprofloxacin for the identification of *Salmonella typhimurium* DT104. Based on the zone of inhibition, 100% of *Salmonella* isolates were found resistance to ampicillin and tetracycline and 50% of the isolation were shown resistance to chloramphenicol and ciprofloxacin.

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CHAPTER 1

INTRODUCTION

Salmonella enterica serotype Typhimurium is a common cause of salmonellosis among humans and animals in many countries (Leon-Velarde *et al.*, 2004). According to Daly and Fanning (2000), *Salmonella enterica* serotype Typhimurium is recognized as a significant human pathogen. An estimated of the 40,000 *Salmonella* isolates has been reported annually to the Centers for Disease Control and Prevention. From this figure, 8.5% are identified as serotype Typhimurium. Culture isolation, serotyping and phagotyping by the method of Callow (1959) are normally used for the identification of this microorganism.

Salmonella typhimurium DT104 is a subpopulation of the *Salmonella* serotype Typhimurium which reacts in a specific way when tested against a battery of bacteriophages. A bacteriophage is defined as a type of virus which infects and in certain cases kills a bacterial organism. The types of phages capable of infecting and killing bacteria are used as a means of classifying bacteria into “phagetypes (PT)” or “definitive phagetypes (DT)”. Phagotyping can be used as a tool to distinguish between various strains of a serotype, such as *Salmonella typhimurium*, which can cause disease outbreaks (Dargatz *et al.*,