OCCURRENCE AND ANTIBIOTIC RESISTANCE OF SALMONELLA SP. IN MUTTON IN WET MARKETS IN SERDANG, SELANGOR

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OCCURRENCE AND ANTIBIOTIC RESISTANCE OF *SALMONELLA SP.* IN MUTTON IN WET MARKETS IN SERDANG, SELANGOR.

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It is hereby certified that we have read this project paper entitled "Occurrence and Antibiotic Resistance of *Salmonella sp.*in Mutton in Wet Markets in Serdang, Selangor", by Muhamad Faizal bin Hahlan and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999 – Final Year Project.

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This project is specially dedicated to

MY PARENTS

Hahlan bin Hassan
Noor Liza binti Abu Bakar

MY SIBLINGS

Hazri Hahlan
Quzier Hahlan
Izeham Hahlan

MY CATS

Eba
Molla
Ros
Tasya
Sayla

MY BESTFRIEND

Mohamad Khir Sulaiman

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ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada keperluan kursus VPD 4999-Projek Ilmiah Tahun Akhir.

KEHADIRAN DAN KERENTANAN ANTIBIOTIK *SALMONELLASP.* DALAM DAGING KAMBING DI PASAR BASAH SEKITAR KAWASAN SERDANG, SELANGOR.

Oleh

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2015

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Salmonella sp. adalah bakteria patogenik utama pada manusia dan juga pada haiwan, yang menyebabkan gastroenteritis akut.Salmonellosis kekal sebagai masalah kesihatan awam yang utama di seluruh dunia terutamanya di negara-negara membangun.Objektif kajian ini adalah untuk menentukan kehadiran dan corak kerentanan antibiotik *Salmonellasp.* yang dipencilkan daripada daging kambing di pasar basah sekitar kawasan Serdang, Selangor. Sebanyak 30 sampel rawak daging kambing telah dikumpulkan dari kedai menjual daging yang berbeza di pasar basah dan kemudiannya diproses untuk pengasingan *Salmonella sp.* dengan cara inokulat

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kesemua sampel ke dalam larutan penggayaan Rappaport-Vassiliadis (RV) (Oxoid) dan kemudian ke dalam agar *Xylose lysine deoxycholate* (XLD) dan agar *Briliant Green* (BGA) (Merck). Kesemua sampel didapati negatif untuk *Salmonella* sp..Kajian ini menunjukkan daging kambing dalam pasaran basah bebas daripada *Salmonella sp*. serta menunjukkan bahawa amalan kebersihan yang baik di rumah sembelih telah dilaksanakan. Kajian berikutnya dengan saiz sampel yang lebih besar dan meliputi seluruh Malaysia diperlukan pada masa akan datang.

Kata kunci: daging kambing, pasar basah, *Salmonellasp*., kerentanan antibiotik

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ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment of the course VPD 4999-Final Year Project.

OCCURRENCE AND ANTIBIOTIC RESISTANCE OF *SALMONELLA SP.* IN MUTTON IN WET MARKETS IN SERDANG, SELANGOR.

By

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2015

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Co-supervisor: Prof. Dr. Saleha binti Abdul Aziz

Salmonella sp. is the major pathogenic bacteria in humans as well as in animals, which causes acute gastroenteritis. Salmonellosis remains an important public health problem worldwide especially in developing countries. The objectives of the study were to determine the occurrence and antibiotic resistance patterns of *Salmonellasp*. isolated from mutton in wet market in Serdang, Selangor. A total of 30 random samples of mutton were collected from different butcher's shops in wet market and processed for isolation of *Salmonella sp.* by inoculating the samples into Rappaport-Vassiliadis (RV) Enrichment Broth (Oxoid) and later into Xylose lysine deoxycholate agar (XLD) and Briliant Green Agar (BGA) (Merck). All samples

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were found negative for *Salmonella sp*. This study highlights the mutton in wet market was free from *Salmonella sp.* and indicates that good hygienic practices in slaughterhouse was implemented. Consecutive studies with bigger sample sizes and covering all over Malaysia are warranted in future.

Keywords: mutton, wet market, *Salmonella sp*., antibiotic resistance

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1.0 INTRODUCTION

Foodborne diseases caused by microorganisms are the number one food safety concern among consumers and regulatory agencies (Garvani, 1987). Illnesses attributed to foodborne microorganisms often cause severe symptoms affecting the digestive tract as well as other bodily functions, and in some cases, these illnesses may result in death if untreated. *Salmonella sp.* is the major pathogenic bacteria in humans as well as in animals and remains an important public health problem worldwide, particularly in the developing countries (Rotimi *et al.*, 2008). A high incidence of *Salmonella sp.* contamination has been found in many species, such as pigs, cattle, poultry and humans. Industrial food animal production methods and slaughterhouse practices may increase the spread of *Salmonella* among food producing animals.

In primary production, conditions exist which facilitate the spread of bacteria, such as high density of animals. Moreover, in modern slaughterhouses the rapid rate of production keeps the animals in close proximity to each other throughout processing, leading the transfer of bacteria from carcass to carcass (Capita *et al*., 2007).

In addition, antimicrobial resistance pathogens emergence has become serious health hazard in the world. The usage of antimicrobials to prevent and treat the diseases as well as promote growth in farm animals, exposing a large number of animals to frequently sub-therapeutic concentrations (White *et al*.,

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2001) and facilitating the development of antimicrobial resistant bacteria that are subsequently transferred to humans through the food chain. Due to the emergence of antimicrobial resistance in *Salmonella sp.*, the treatment towards salmonellosis becomes ineffective (Padungtod *et al.*, 2006).

Several studies have reported on the prevalence of *Salmonella sp.* and its many serotypes in beef, pork and chicken meat, but little research has been performed on the prevalence in mutton. As the consumption of mutton products rise and the possible risk of *Salmonella sp.* infections in the Malaysia increases, it is important to determine the prevalence of this pathogen in mutton.

1.1 OBJECTIVES

The objectives of this study were:

1. To isolate and identify *Salmonella sp*. in mutton isolated from wet market in Serdang, Selangor.
2. To determine the antimicrobial resistance of *Salmonella sp*. isolates.

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