



Cairo University
Faculty of Veterinary Medicine



Immunological Studies on Salmonellae Isolated From Different Sources

A thesis submitted by
Enas Atef Shedeed Younis
(B.V. Sc. Fac. Vet. Med. Cairo. Univ. 2009)
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Under supervision of

Prof. Dr. Jakeen Kamal Abd El-Haleem El-Jakee
Professor of Microbiology, Faculty of Veterinary Medicine,
Cairo University

**Prof. Dr. Mahmoud Dardiri
El-Hariri**

Professor of Microbiology, Faculty of Veterinary
Medicine, Cairo University

**The late Dr. Soad Abd El-Aziz
Abd El-Wanis**

Chief researcher of poultry diseases Reference
Lab for Quality Control of Poultry Production,
Animal Health Research Institute, Dokki, Giza.

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Cairo University
Faculty of Veterinary Medicine
Microbiology department

Name: Enas Atef shedeed Younis
Nationality: Egyptian
Date of birth: 7/5/1987
Place of birth: Egypt
Degree: M.V. Sc. Fac. Vet. Med. Cairo. Univ. 2014
Specification: Microbiology
**Thesis Title :Immunological Studies on Salmonellae Isolated From
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Supervisors: Prof. Dr Jakeen Kamal Abd El- Haleem El- Jakee
Prof. Dr. Mahmoud Dardiri El-Hariri
The late Dr. Soad Abdel Aziz Abdel Wanis.

Abstract

Salmonella infection is a critical veterinary and medical problem world-wide and is a major issue in the food industry. Non-typhoidal *Salmonella* is known significantly as an important gastroenteritis-related pathogen. There is limited data specifically discussing the outer membrane proteins (OMPs), a distinguishable characteristic of Gram negative bacteria situated at host–bacterial interface and are significant for virulence, host immune responses and drug therapy targets. Enhanced diagnosis of live poultry colonized with *Salmonella* species is required to avoid food borne diseases. The widely available ELISA assays are currently based on O-antigens (LPS) mixture or *Salmonella* total cell lysate and are unorganized by cross-reaction. The present study is based on molecular characterization of OMPs among four *Salmonella* serovars (*S.Typhimurium*, *S. Enteritidis*, *S. Kentucky* and *S. Anatum*) using SDS-PAGE, the isolates were confirmed by culturing, biochemical, serological and molecular (real-time PCR targeting *invA* gene) identifications. The OMPs profiling showed more than 70 protein bands ranging in size from 208 kDa to below 16 kDa which were detected using Totallab 1D 12.2 software. It is clear that all *Salmonella* strains had bands at 54-60 kDa, 45-53 kDa, 36-39 kDa and 26-31 kDa. Eleven strains had bands at 41-46 kDa and 33-35 kDa. Nine strains had bands at 61-69 kDa. Eight strains had bands at 135-145 kDa and 72-79 kDa. Seven strains had bands at 108-123 kDa and 83-91 kDa. In the Western blot analysis, the prepared hyper immune serum of each *Salmonella* serovars reacted with the outer membrane protein band 35kDa. The finding highlighted that the OMP 35kDa protein of studied salmonellae could be immune-response protein. An Indirect ELISA developed in this study holds promise as screening of poultry flocks for *Salmonella* infection.

Key words: *ELISA, Outer Membrane Proteins, Salmonella, SDS, Western immuno blotting.*