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# ***Evaluation of Quality control for Detection of Bacteria Contaminated SPF and Commercial Eggs***

**A Thesis Presented**

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اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ \* خَلَقَ الْإِنْسَانَ مِنْ  
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### **Abstract**

*Salmonella* spp. are one of the major bacterial causes of food borne gastroenteritis. Eggs are most commonly identified as food sources responsible for salmonellosis outbreaks. *Mycoplasma gallisepticum* is the most economically significant *Mycoplasma* pathogen of poultry, and has a world-wide distribution in common with other mycoplasmas. The present study aimed to isolate and identify salmonellae and *Mycoplasma gallisepticum* from hen's eggs, as well as using of PCR for direct identification of the *S. Typhimurium*, *S. Enteritidis* and *Mycoplasma gallisepticum* from eggs. Among salmonellae, the general incidence among the native eggs yolk was 1.3%. While the incidence of salmonellosis among white and brown eggs was 1.2% for both. The 13 *Salmonella* isolates from the native egg yolk were indicated as 7 *S. Typhimurium* and 6 *S. Enteritidis*. From the white eggs, one *S. Enteritidis* and two *S. Typhimurium* were isolated from the egg yolk. The brown eggs harbored two *S. Enteritidis* and one *S. Typhimurium*. All positive samples were from yolk samples. Using PCR 66 albumin samples were positive for salmonellae (48 *S. Enteritidis* and 18 *S. Typhimurium*). Mycoplasmae could be isolated from the examined egg samples. A total of 4%, 2% and 2% were recorded among white, brown and native breed egg samples. All negative samples were retested by PCR. And the results showed that 24 negative yolk samples by culture, biochemical and serological tests gave positive results for *Mycoplasma gallisepticum*. All examined SPF eggs were free from salmonellae and mycoplasmae.

# DEDICATION

*ALLAH , I don't like the night without thanking you, I don't like the day without obedience for you, and there is no happy afterlife without your pardon, and we won't enjoy paradise without seeing you, Almighty God.*

*The Prophet of mercy and the light of the World's Peace be upon him, **Prophet Mohammed**.*

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## LIST OF ABBREVIATIONS

<b>API</b>	Analytical Profile Index
<b>BFP</b>	bundle-forming pilus
<b>BS</b>	bismuthsulphite agar
<b>CDC</b>	Centers for Disease Control and Prevention
<b>CDC</b>	Communicable Disease Center
<b>CRD</b>	chronic respiratory disease
<b>DCA</b>	desoxycholate-citrate agar
<b>DIASALM</b>	diagnostic semi-solid <i>Salmonella</i> medium
<b>DNA</b>	Deoxy Nucleic Acid
<b>EDTA</b>	Ethylene Diamine Tetraacetic Acid
<b>ELISA</b>	enzyme linked immunosorbent assay
<b>EU</b>	European Union
<b>Fig.</b>	Figure
<b>FT</b>	Fowl typhoid
<b>GIT</b>	Growth inhibition test
<b>HI</b>	Haemagglutination inhibition test
<b>IB</b>	infectious bronchitis
<b>IFA</b>	Indirect fluorocent antibody test
<b>IgM</b>	immunoglobulin M
<b>IP</b>	Immunoperoxidase test
<b>ISO</b>	International Organization of Standardization
<b>LPF</b>	long polar fimbriae
<b>LPS</b>	lipopolysaccharide
<b>MAb</b>	monoclonal antibody
<b>MAbs</b>	monoclonal antibodies
<b>MG</b>	<i>Mycoplasma gallispteicum</i>
<b>MI</b>	<i>Mycoplasma iowe</i>
<b>MKTTn</b>	Mueller-Kauffman Tetrathionate novobicin
<b>m-PCR</b>	Multiplex Polymerase Chain Reaction
<b>MS</b>	<i>Mycoplasma synoviae</i>
<b>MSRV</b>	modified semi-solid Rappaport Vassiliadis
<b>NAD</b>	Nicotinamide adenine dinucleotide
<b>ND-vaccinated</b>	Newcastle disease-vaccinated
<b>NO.</b>	Number
<b>NS</b>	non-selective
<b>OIE</b>	International Office of Epizootics
<b>PBS</b>	Phosphate buffer saline

<b>PCR</b>	Polymerase Chain Reaction
<b>PCR-RV</b>	Polymerase Chain Reaction combined with Rappaport- Vassiliadis
<b>PD</b>	Pullorum disease
<b>PEF</b>	plasmid-encoded fimbriae
<b>PPLO</b>	pleuropneumonia-like organism
<b>RAPD</b>	random amplified polymorphic DNA
<b>RBCs</b>	red blood cells
<b>RNA</b>	Ribonucleic acid
<b>RSA</b>	Rabid serum agglutination test
<b>RST</b>	Rabid serum agglutination test
<b>SCV</b>	<i>Salmonella</i> -containing vacuole
<b>SE</b>	<i>Salmonella</i> Enteritidis
<b>SEF14</b>	<i>S. Enteritidis</i> fimbriae antigen 14
<b>SG</b>	<i>Salmonella</i> Gallinarum
<b>SMT</b>	standard microbiological techniques
<b>SP</b>	<i>Salmonella</i> Pullorum
<b>SPA</b>	slide plate agglutination
<b>SPA</b>	Serum plate agglutination
<b>SPF</b>	Specific pathogenic free
<b>SPI-1 and -2</b>	<i>Salmonella</i> pathogenicity islands 1 and 2
<b>ST</b>	<i>Salmonella</i> Typhimurium
<b>T3SS</b>	type III secretion systems
<b>TSI</b>	triple sugar iron agar
<b>US</b>	United states
<b>UV</b>	Ultra violet
<b>V-P</b>	Voges-Proskauer
<b>WHO</b>	World Health Organization
<b>XL</b>	Xylose Lysine