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### **Abstract**

This study was carried out to compare between cultural isolation methods and RT-PCR technique for detection of salmonella in broiler chicks. A 120 samples of liver and intestinal content from imported and local chicks were collected representing 1800 chicks. The incidence of salmonella among imported chicks was 11.67%, whereas it was 21.67% among local chicks by conventional cultural isolation methods. **S. Newport** was the highest incidences serotype in imported chicks, while **S. Enteritidis** and **S. Typhimurium** indicated the highest incidence rate among local chicks. Most of *Salmonella* serotypes isolated were 100% sensitive to Amoxicillin-Clavulanic acid and Ciprofloxacin. The RT-PCR technique results were 58.33% positive samples in imported chicks and were 66.67% positive samples in local chicks. The obtained results indicated that the RT-PCR technique was rapid, robust, effective and most suitable to detect *Salmonella* spp. in broiler chicks samples.

**Key words:** *Salmonella* spp., chicks, isolation, RT-PCR.

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العنوان: دراسة مقارنة بين اختبار تفاعل البلمرة المتسلسل فى الوقت الحقيقى وطرق العزل التقليدية للكشف عن بكتريا السالمونيلا فى كتاكيث التسمين.

### المستخلص العربى

أجريت دراسة مقارنة بين اختبار تفاعل البلمرة المتسلسل فى الوقت الحقيقى والطرق التقليدية للكشف عن بكتريا السالمونيلا فى كتاكيث التسمين. حيث وجدنا نسبة عزل ميكروب السالمونيلا فى كتاكيث التسمين المستوردة ١١,٦٧% بينما كانت ٢١,٦٧% فى كتاكيث التسمين المحلية. وكانت السلمونيلا نيوبورت اعلى نسبة عزل فى الكتاكيث المستوردة، والسالمونيلا إنترتيدس والسالمونيلا تيفميوريم أعلى نسبة عزل فى الكتاكيث المحلية. أما بالنسبة لنتائج تفاعل البلمرة المتسلسل فى الوقت الحقيقى كانت ٥٨,٣٣% فى الكتاكيث المستوردة و ٦٦,٦٧% فى الكتاكيث المحلية ، وكانت معظم الأنماط المصلية للسالمونيلا المعزولة حساسة بنسبة ١٠٠% للأموكسيسيلين-حامض الكلافلونيك وسيبروفلوكساسين، وأشارت النتائج فى الدراسة أن تقنية تفاعل البلمرة المتسلسل فى الوقت الحقيقى كانت سريعة ، ذات حساسية عالية وأكثر ملائمة من الطرق التقليدية فى الكشف عن بكتريا السالمونيلا فى كتاكيث التسمين.

الكلمات الدالة: السالمونيلا، الكتاكيث، العزل، تفاعل البلمرة المتسلسل فى الوقت الحقيقى.

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# **LIST OF ABBREVIATION**

<b>AE</b>	Elution buffer
<b>AOAC</b>	Association of Official Agricultural Chemists
<b>ATCC</b>	American Type Culture Collection
<b>API 20E</b>	Analytical Profile Index 20 <i>Enterobacteria</i>
<b>AW</b>	Wash buffer
<b>BGS</b>	Brilliant Green Sulfa
<b>BPW</b>	Buffered Peptone Water
<b>bp</b>	Base pair
<b>BS</b>	Bismuth Sulfite
<b>Cat. No.</b>	Catalogue number
<b>C.T</b>	Threshold Cycle
<b>CFU</b>	Colony Forming Unit
<b>CLSI</b>	Clinical and Laboratory Standards Institute
<b>DNA</b>	Deoxyribo Nucleic Acid
<b>EDTA</b>	Ethylene Diamine Tetra Acetic acid
<b>EFSA</b>	European Food Safety Authority
<b>FAO</b>	Food and Agriculture Organization
<b>FDA</b>	Food and Drug Administration
<b>FSIS</b>	Food Safety and Inspection Service

<b>FT</b>	Fowl Typhoid
<b>g</b>	Gram
<b>H</b>	Flagellar antigen
<b>h.</b>	Hours
<b>HEA</b>	Hektoen Enteric Agar
<b>IMS</b>	Immune Magnetic Separation
<b><i>invA</i></b>	Invasive A gene
<b>ISO</b>	International Organization for Standardization
<b>LI</b>	Lysine Iron
<b>ml</b>	Milliliter
<b>mm</b>	Millimeter
<b>min</b>	Minute
<b>MKTT</b>	Muller Kauffmann Tetra Thionate
<b>MMWR</b>	Morbidity and Mortality Weekly Report
<b>MSRV</b>	Modified Semisolid Rappaport Vassiliadis
<b>NO.</b>	Number
<b>O</b>	Somatic antigen
<b>PCR</b>	Polymerase Chain Reaction
<b>PD</b>	Pullorum Disease
<b>RT-PCR</b>	Real Time - Polymerase Chain Reaction
<b>RNA</b>	Ribo Nucleic Acid

<b>RV</b>	Rappaport Vassiliadis broth
<b>RVS</b>	Rappaport Vassiliadis with Soya broth
<b>rpm</b>	Revolutions per minute
<b>spp.</b>	Species
<b>S.</b>	Salmonella
<b>Taq</b>	Thermun aquaticus
<b>TSI</b>	Triple Sugar Iron agar
<b>WHO</b>	World Health Organization
<b>XLD</b>	Xylose Lysine Deoxycholate agar
<b>XLT4</b>	Xylose Lysine Tigretol 4
<b>°C</b>	Celsius temperature