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List of abbreviations

A/E	Attaching and effacing adhesion.
APEC	Avian pathogenic <i>Escherichia coli</i>
api 20	Analytical profile index 20
Bp	Base pair
BKC	Benzalkonium chloride
BPW	Buffered Peptone Water
Cat.	Catalogue
CLDT	Cytotoxic Distending Toxin.
CLSI	Clinical and Laboratory Standards Institute
DNA	Deoxy ribonucleic acid
D.W.	Distilled Water
DDW	Deionized Distilled Water
eae	Gene encodes intimin which responsible for attaching and effacing
EAggEC	Enterohaggative <i>Escherichia coli</i> .
EDTA	Ethylene Diamine Tetraacetic Acid

EHEC	Enterohemorrhagic <i>Escherichia coli</i>
EIEC	Enteroinvasive <i>Escherichia coli</i>
EMB	Eosin Methylene Blue agar
EPEC	Enteropathogenic <i>Escherichia coli</i>
ETEC	Enterotoxigenic <i>Escherichia coli</i>
Gm	Gram
HE agar	Hiktone enteric agar
H₂S	Hydrogen sulphide
<i>invA</i>	Salmonella Invasive Gene
LI agar	Lysine Iron Agar
Min	Minutes
µg	Micro gram
ml	Milliliters
µl	Micro litter
Mm	Millimeter
MKTTn	Muller- Kauffmann Tetrathionate novobiocin

MR	Methyl red
NCCLS	National Committee for Clinical Laboratory Standards
PCR	Polymerase chain reaction
QAC	Quaternary ammonium compounds
QacΔ1	Attenuated variant Qac gene
Rpm	Revolution per minute
RVs	Rappaport – Vassiliadis
SPIs	Salmonella pathogenicity island gene
SPv	Salmonella plasmid virulence gene
SS agar	Salmonella Shigella agar
Subsp	Subspecies
TBE	Tris borate EDTA
TSA	Tryptic Soya agar
TSI agar	Triple Sugar Iron agar
TT	Tetrathionate
VP	Voges Proskauer

WHO	World health organization
XLD	Xylose Lysine Deoxycholate agar
YSI	Yolk sac infection

7. SUMMARY:

In this study, 200 diseased Saso chicks with omphalitis were examined (1400 samples) for the isolation of different bacterial strains from different organs (liver, ceacum, spleen, heart, lung, yolk sac and cloacal swab). Out of 200 chicks (1400 samples), 64 cases were positive with an incidence of 32% and bacteriological examination revealed that 142 and 58 were harbored bacterial strains as single and mixed infections with an incidence of 71% and 29% respectively.

Out of 200 chicks (1400 samples) examined, *E. coli* 50 (25%) was the most predominant isolate followed by *S. aureus* 25 (12.5%) followed by salmonella 24 (12%) and finally *P. aeruginosa* 5 (2.5%).

Out of 200 chicks (1400 samples), the incidence of yolk sac infection was observed in 64 (32%) chicks. Maximum percentage (51.4%) of yolk sac infection was observed in chicks of 5 days old followed by age of 3 days (37.5%) , 4 days (30%) , 2 days & 6 days (26.67%) , 1 day (20%) and 7 days (15%).

The obtained results of this study revealed that the most *Escherichia coli* isolates obtained from liver of the examined chicks followed by yolk, spleen, caecum, heart , lung and cloacal swab 14%, 11.5%, 11%, 10%, 10% , 9% and 8% respectively.

In this study, 50 out of 200 *E. coli* isolates recovered from chicks could be serogrouped in 19 O groups with the most predominant serotype was *E. coli* O₉₁ 20 % (10 out of 50 isolates).

Salmonella incidence was 12% (24 out of 200 chicks) and the most *Salmonella* species were obtained from caecum of the examined chicks followed by liver, spleen, lung , cloacal swab , yolk and heart , 12%, 11.5%, 11.5%, 8.5%, 8.5% , 8% and 6% respectively. Salmonella isolates were serotyped using poly and monovalent "O" and "H" antisera. The serogrouping revealed that the most predominant serotypes were *S. Typhimurium* and *S. Enteritidis* 20.83% (5strains out of 24 for each).

S. aureus was recovered in 24 samples with an incidence rate 12.5 % (25 out of 200). The internal organs of each chicken was examined bacteriologically to determine the incidence of *S. aureus* in each organ, where *S. aureus* was isolated as the following 6.5% (13 out of 200) from liver; 6% (12out of 200) from caecum; 4% (8 out of 200) from spleen; 4.5% (9 out of 200) from heart; 4% (8 out of 200) from lung; 2.5% (5 out of 200) from yolk and 4% (8 out of 200) cloacal swab.

P. aeruginosa was isolated as the following 1.5% (3 out of 200) from liver; 1.5% (3 out of 200) from caecum; 0.5% (1 out of 200) from spleen; zero from heart; 0.5% (1 out of 200) from lung; 2% (4 out of 200) from yolk and 1% (2 out of 200) cloacal swab.

E. coli O groups was found to be 93.02% resistant to amoxicillin while was found to be highly sensitive for gentamycin with 88.37%. Also

Salmonella was found to be 83.33% resistant to amoxicillin while was found to be highly sensitive for gentamycin with 95.8%. While *S. aureus* was found to be 96% resistant to erythromycin while was found to be highly sensitive for gentamycin with 100%. And finally *P. aeruginosa* was found to be 100% resistant to tetracycline while it was highly sensitive for gentamycin with 80%.

In this study, the incidence rate (15.79%) of *eaeA* gene of *E.coli* detection was recorded, was detected by PCR (3 out of the 19 tested isolates). Incidence rate (72.22%) of *mecA* gene of *S. aureus* detection was recorded. It was detected by PCR (13 out of the 18 tested isolates). While the incidence rate (85.71%) of *invA* gene of Salmonella detection was recorded, as it was detected by PCR (6 out of the 7 tested isolates).

The *qacEΔ1* gene was reported in the present study as following: -In *E. coli* (63.16%), was detected by PCR (12 out of the 19 tested isolates).

- In salmonella (57.14%), was detected by PCR (4 out of the 7 tested isolates).
- In *S. aureus* (44.44%), was detected by PCR (8 out of the 18 tested isolates).
- In *P. aeruginosa* (100%), was detected by PCR (5 out of the 5 tested isolates).

Finally Chicks with omphalitis harbored many different pathogens which considered source of infection during first days of life.