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BACTERIA ASSOCIATED WITH ENTERITIS IN BROILERS IN FAYOUM GOVERNORATE

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ABSTRACT

600 samples were collected from diarrheic broiler chickens and from apparently normal chickens in Fayoum Governorate .The bacteriological examination revealed that a total of 530 bacterial isolates were recovered from the 600 broiler chickens under examination. Cloacal swabs (130), cecal contents (350), unabsorbed yolk sac (40), liver and gall bladder (40) and heart blood (40).

Concerning the type of isolated bacteria from broiler chickens E. coli was the predominate (59.3) %. 53.3%of isolates were from diarrheic birds and 6.0% from apparently healthy chickens, followed by Proteus mirabilis (14.8%). Out of them were 11.6% from diarrheic birds and 3.2% from apparently healthy birds. And Proteus vulgaris (3.3%). Out of them were 2.5% from diarrheic broiler chickens and 0.8% from apparently healthy one.

E. coli was the most predominant bacteria recovered from the examined cases. 50 isolates of E. coli which were isolated from large intestines tested for in vitro pathogenicity using Congo red dye. The result showed fundamental variation for the growth of E. coli of diarrheic and apparently healthy origin on Cango red dye as 86% of E. coli isolated from chickens gave red colonies (pathogenic) while 16% of E. coli isolates did not bind to Congo red dye gave white colonies (non pathogenic).

Eight E. coli isolates recovered from examined diseased broiler chickens were serotyped and revealed the following : 3 isolates O114 K90, 2 isolates O26 K60, 2 isolates and one isolate O91 K - .

Ten Salmonella spp. isolates recovered from examined diseased broiler chickens were serotyped and revealed that 6 isolates were belonging to Salmonella Enteritidis and 4 isolates belonged to Salmonella Virchow.

Aeromonas hydrophila, Salmonella Enteritidis, Salmonella Virchow and E. coli were examined for antibiotic sensitivity test. It was found that Aeromonas hydrophila isolates were sensitive to gentamycin, doxycycline,norfloxacin,enrofloxacin,chloramphenicol and ciprofloxacin, Salmonella Enteritidis isolates were sensitive to chloromphenicol, enroloxacin, norfloxacin, colistin, ciprofloxacin and Gentamycin, neomycin and doxycycline, but Salmonella Virchow isolates were sensitive to chloromphenicol,enrofbxacin,norlooxacin,colistin,neomycin, ciprofloxacin, gentamicin, cephalexin and doxycycline, while E. coli isolates were sensitive to gentamicin, doxycycline and norfloxacin, chloramphenicol, cephalexin, norfloxacin and colistin.

Key Word: Enteritis, Broilers, Fayoum Governorate.

INTRODUCTION

Outbreaks of severe diarrhea followed by death which occurred every autumn for several years in 2 to 4 weeks old chicken on a poultry farm were recorded by ***He et al. (1981).***

Verma and Adiakha (1971) isolated *E. coli , Salmonella* Anatum*, Salmonella* Stanly*, Klebsiella* species*, Proteus* species and paracolon bacteria from 359 chickens showing chronic respiratory disease, septicemia, unabsorbed yolk sac and enteritis.

There is no doubt that *Salmonella* species are among the most important causative agents which infect poultry populations and cause great losses and hazards to public health ***(EL-Sayed, 1997).***

Escherichia coli is a normal inhabitant of the intestinal tract of birds, these organisms are capable of producing diseases under the influence of predisposing factors, like inadequate and faulty ventilation, over crowding, thirst and extremes of temperature. Consequently, losses due to ***E. coli*** infection occur as a result of high mortality during rearing and reduced weight gain ***(Kaul et al., 1992).***

Family *Enterobacteriaceae*, which is composed of numerous inter-related Gram negative and oxidase negative bacteria, may constitute a great hazard to poultry industry. Some of them like *Klebsiella* assume a great significance. Many *Klebsiella* species are intestinal pathogens or commensals, while a few species are saprophytic mainly in the soil, water and feed rations ***(Arora et al., 1986).*** As *Klebsiella* group is concerned, it comprises many important species associated with diseases in birds, animals as well as human beings ***(Mackay, 1988).*** The *Klebsiella* organisms are known to play an important role as etiological agent of various diseases in birds and are found to be associated with different diseases as respiratory affections, septicemia, peritonitis, salpingitis, air sacculitis, omphalitis, arthritis, panophthalimitis and intestinal disturbances resulting in high mortality rates in young bird an decrease in egg production and hatchability of the infected eggs ***(Plesser et al., 1975; Mahalingam et al., 1988 and Rennie et al., 1990).***

Proteus species were isolated from recently dead broilers chicks with an incidence of 25.8% ***(Mahmoud and Moussa, 2000)***.

MATERIAL AND METHODS

Samples:

A total of 600 broiler chickens from different farms at Fayoum governorate were subjected to bacteriological examination in the present investigation, Out of which 500 chickens were suffeed from enteritis and showed dullness, huddling, ruffled feather, diarrhea and low body gain. The rest of 100 broiler chickens were apparently healthy chickens from the same farms and were used as controls.

Table (1): Number of examined broiler chickens in different farms at Fayoum governorate.

Farms	Number of examined birds		Total
	Apparently healthy	Diarrheic	
Tamia	30	150	180
Senores	30	150	180
Itsa	20	100	120
Ibshawi	20	100	120
Total	100	500	600

Table (2): Distribution of samples collected from broiler chickens.

samples	Intestinal swabs	Cecum contents	unabsorbed yolk sac	Liver and gall bladder	Heart blood
600	130	350	40	40	40

Media used for bacteriological isolation:

The media used in the present study were:

Transport medium:

Stuart transport media (Oxoid)

Liquid media:

Pre-enrichment medium:

1 % buffered peptone water (Oxoid)

Salmonella enrichment media:

Selenite F-broth (Oxoid):

It is a selective medium for isolation of salmonella:

Selective solid media for plating:

MacConkey's bile salt lactose agar medium (Oxoid):

A selective medium to differentiate between coliforms and non-lactose fermenters with inhibition of Gram-positive organisms.

***Salmonella* - *Shigella* (SS) agar (Oxoid):**

It was used as a differential selective medium for the isolation of ***Salmonella*** from clinical specimens.

Xylose lysine deoxycholate (XLD) agar (HIMEDIA):

It was used as a differential selective medium for the isolation of ***Salmonella*** from clinical specimens.

Aeromonas agar base (Oxoid):

It was used as a differential selective medium for the isolation of ***Aeromonas*** from clinical specimens

Congo red medium (Berkhoff and Vinal, 1986):

It was used for differentiation between pathogenic and non pathogenic ***E. coli*.** The medium consist of trypticas esoya agar **(Oxoid)** supplemeted by 0.03% Congo red dye **(Sigma)** and 0.15% bile salts **(Sigma).**

Media used for biochemical reactions:

All media used were prepared according to ***Cruickshank et al. (1975).***

- **Peptone water 2% (Oxoid) :**

It was used for detection of indole production using Kovac's reagent.

- **Glucose phosphate broth:**

It was used for Methyl red (MR) reaction and Voges proskauer (VP) test.

- **Simmon's citrate agar (Oxoid):**

It was used for citrate utilization test.

- **Christensen's urea agar base (Oxoid):**

It was used for testing urease enzyme activity.

- **Soft agar medium (0.5 %):**

It was used for detection of motility as well as short term preservation of isolates.

- **Triple sugar Iron agar (TSI) (Oxoid):**

It was used for detection of hydrogen sulphide production as well as fermentation of glucose, lactose and sucrose by change in butt and slants.

- **Reagents and chemicals:**

1. **Kovac's reagent for indol test :**
2. **Tetramethyl-P-Phenylene diamine dihydrochloride 1%:** Solution was used for Oxidase test.
3. **Methyl red 0.04%:**Solution was used for Methyl red test.
4. **Voges Proskauer reagents (VP).**
5. **Sterile urea solution 40%:**

It was added to Christensen's urea agar base **(Oxoid)** and used for urease test.

6. **Gram stain.**

7. **Phosphate buffer saline (PBS):** It was used for serotyping of Salmonella.

8. **Hydrogen peroxide 3.0%:** It was used for catalase test.

Material used for API 20 E test :

- **Media and reagents :**
- 5Ml of NaCl 0.85% medium, TDA reagent, JAMES reagent, VP 1 reagent, VP 2 reagent, NIT 1 reagent, NIT 2 reagent and 25 API 20 E strips
- 25 incubation boxes, 25 result sheets, 1 clip seal, pipettes, Ampoule protector and general microbiology equipment.

Material used for antibiogram determination:

Nutrient broth (Oxoid), Muller Hinton agar (Oxoid) and Antibacterial disks used for sensitivity test (Oxoid).

Antisera used for serotyping of *E.coli* isolates: (SIFIN Institut Berlin, Germany) .

- **Available polyspecific products:**
  - Anti-Coli I, Anti-Coli II and Anti-Coli III
- **Available monospecific products:**

Anti-Coli O 128 : (K 67)	Anti-Coli O 25 : (K 11)
Anti-Coli O 91 : (K -)	Anti-Coli O 119 : (K 69)
Anti-Coli O 142 : (K 86)	Anti-Coli O 26 : (K 60)
Anti-Coli O 103 : (K -)	Anti-Coli O 124 : (K 72)
Anti-Coli O 145 : (K -)	Anti-Coli O 44: (K 74)
Anti-Coli O 111 : (K 58)	Anti-Coli O 125 : (K 70)
Anti-Coli O 157 : (K -)	Anti-Coli O 55 : (K 59)
Anti-Coli O 114 : (K 90)	Anti-Coli O 126 : (K 71)
Anti-Coli O 158 : (K -)	Anti-Coli O 78: (K 80)
Anti-Coli O 118 : (K -)	Anti-Coli O 127 : (K 63)
Anti-Coli O 164 : (K -)	Anti-Coli O 86 : (K 61)

Antisera used for serotyping of *Salmonella* isolates:

(MAST ASSURE SALMONELLA ANTISERA Mast Diagnostic Mast House, Derby Road, Bootle, L20 1EA.)

Liquid stable antisera for the determination of O, H and Vi antigens for the serological identification of Salmonellae.

Methods

Collection of samples:

(Edward´s and Ewings (1972), Finegold and Martin (1982) and Krieg and Holt (1984)).

All samples of chickens from different farms in Fayoum governorate (Tables 1 and 2) were collected and transported in an ice box to the laboratory as soon as possible, Swabs were collected in Stuart medium and transported in an ice box to laboratory as soon as possible, then inoculated in 10 ml sterile buffered peptone water and incubated at 37ºC for 24 hours incubation, About one ml was transferred to 10 ml selenite-F broth then incubated at 37ºC for 18 – 24 hours. A loopful from the selenite- F broth inoculated with the samples was streaked onto Salmonella Shigella (S.S.) agar and Xylose lysine deoxycholate (XLD) agar then incubated at 37ºC for 24 hours. Each separate loopful was directly inoculated into separate nutrient broth tubes and then subcultured onto MacConkey agar. The inoculated broth and the streaked agar medium was incubated at 37°C for 24 hours. Pure colonies were picked up and preserved on slope agar for further morphological, biochemical and serological identification

Isolation of *E. coli, Klebsiella pneumoniae, Pseudomonas spp., Proteus spp.* and *Aeromonus hydrophila* by direct plating method: *(Cruickshank et al., 1975)*.

Fecal samples were subjected for bacteriological examination**.**

Identification of bacterial isolates: *(Cruickshank et al., 1975)*.

Morphological identification and detection of motility: *(Cruickshank et al., 1975)*.

Biochemical identification by conventional methods : *(Quinn et al. (2002); Koneman et al. (1995) and Finegold and Martin (1982)* were using the following tests: Oxidase test, Catalase test, Indole test, Methyl red test (MR), Voges-Proskauer test (VP),Citrate utilization test, Urea hydrolysis test, Hydrogen sulphide test,as well as fermentation of glucose, lactose and sucrose by change in butt and slants .

Biochemical identification by API 20 E test: (BioMerieux Sa – France)

In-vitro* antibiotic sensitivity of *Aeromonas*, *Salmonella spp*. and *E. coli* isolates: *(Finegold and Martin (1982))*.**Reading of the results was interpreted according to ***NCCLS (2002).

Serological typing of isolated bacteria:

It was done at the National Laboratory for Veterinary Quality Control of Poultry Production (N.L.Q.P.) Dokki, Giza.

1- Serological identification of *E. coli* : *Ewing (1986).*

2- Serological identification of *Salmonella serovars: (Kauffman, 1974)*

RESULTS

Incidence of bacteria isolated from diarrheic chickens and apparently healthy chickens:

M.O.	*AHC		**DC		Total	
	NO.	%	NO.	%	NO.	%
E. coli	36	6.0	320	53.3	356	59.3
Proteus mirabilis	19	3.2	70	11.6	89	14.8
Salmonella spp.	-	-	31	5.2	31	5.2
Proteus vulgaris	5	0.8	15	2.5	20	3.3
Aeromonas hydrophila	-	-	19	3.2	19	3.2
Klebsiella Pneumoniae	-	-	15	2.5	15	2.5
Pseudomonas spp.	-	-	14	2.3	14	2.3
Total	**60**	**10.0**	**484**	**80.6**	**544**	**90.6**

* AHC = Apparently healthy. **DC=Diarrheic.

Table (3): Results of bacteriological examination.

Incidence of different mixed bacteria isolated from diarrheic chickens:

Mixed bacteria		
	NO.	%
E. coli + Salmonella spp.	8	1.3
E. coli + A. hydrophila.	6	1.0
E. coli + Klebsiella pneumoniae.	6	1.0
E. coli + P. Mirabilis.	22	3.6
E. coli + P. vulgaris.	9	1.5
E. coli + Pseudomonas pneumoniae.	6	1.0
Salmonella spp. + A. Hydrophila.	3	0.5
Salmonella spp. + P.mirabilis.	12	2.0
A. hydrophila. + P. mirabilis.	4	0.6
Klebsiella pneumoniae + P. mirabilis.	6	1.0
A. hydrophila. + P. vulgaris.	3	0.5
Total	85	14.16

Table (4): Type of mixed bacteria among examined chicken.

Incidence of bacteria isolated from different organ of diarrheic chickens:

	Intestinal swabs	Cecum contents	Unabs. Yolk sac	Liver & G.B.	Heart blood	Total
E. coli	56	196	14	28	26	320
P. mirabilis	17	33	10	5	5	70
Salmonella Spp.	0	31	0	0	0	31
P. vulgaris	6	8	1	0	0	15
A. hydrophila	11	5	3	0	0	19
Klepsiella pneumoniae	1	0	4	6	4	15
Pseudomonas spp.	2	2	3	5	2	14
Total	**93**	**275**	**35**	**44**	**37**	**484**

G.B.= gall bladder

Table (5): Recovered bacteria isolated from different diarrheic chicken organs.

Congo red binding activity of recovered E. coli:

Congo Red Binding	* AHC		** DC		Total	
	AH	%	D	%	Total	%
Positive	3	6	40	80	43	86
Negative	7	14	0	0	7	14
Total examined	**10**	**20**	**40**	**80**	**50**	**100**

* AHC = Apparently healthy ** DC = Diarrheic .

Table (6): Results of *in vitro* differentiation between pathogenic and non pathogenic *E. coli*.

Antibiotic susceptibility of isolates to chemotherapeutic agents:

Antibiotic susceptibility of *Aeromonas hydrophila* isolated from diseased chicks:

Antibacterial agents	*S		**I		***R	
	N0	%	No	%	No	%
Amoxicillin	1	25	1	25	2	50
Ampicillin	1	25	1	25	2	50
Chloramphenicol	3	75	1	25	0	0
Cephalexin	1	25	2	50	1	25
Ciprofloxacin	3	75	1	25	0	0
Enrofloxacin	4	100	0	0	0	0
Neomycin	1	25	1	25	2	50
Gentamicin	4	100	0	0	0	0
Doxycycline	4	100	0	0	0	0
Norfloxacin	4	100	0	0	0	0
Erythromycin	1	25	1	25	2	50
Colistin	1	25	2	50	1	25

* S = Sensitive ** I = Intermediate *** R = Resistant

Table (7): The results of disc diffusion test on *A. hydrophila* isolates.

Antibiotic susceptibility of *Salmonella* Enteritidis *and Salmonella* Virchow isolated from diseased chickens:

Antibacterial agents	*S. Enteritidis*						*S. Virchow*					
	*S		**I		***R		*S		**I		***R	
	No	%	No	%	No	%	No	%	No	%	No	%
Amoxacillin	1	25	1	25	2	50	0	0	3	75	1	25
Ampicillin	0	0	1	25	3	75	0	0	1	25	3	75
Chloram-phenicol	4	100	0	0	0	0	4	100	0	0	0	0
Cephalexin	1	25	2	50	1	25	2	50	1	25	1	25
Ciprofloxacin	4	100	0	0	0	0	4	100	0	0	0	0
Neomycin	3	75	1	25	0	0	4	100	0	0	0	0
Gentamicin	4	100	0	0	0	0	4	100	0	0	0	0
Doxycycline	3	75	1	25	0	0	2	50	1	25	1	25
Norfloxacin	4	100	0	0	0	0	4	100	0	0	0	0
Erythromycin	0	0	1	25	3	75	0	0	1	25	3	75
Colistin	4	100	0	0	0	0	4	100	0	0	0	0

* S = Sensitive ** I = Intermediate *** R = Resistant

Table (8): The results of disc diffusion test on *Salmonella* Enteritidis and *Salmonella* Virchow.

Antibiotic susceptibility of *E. coli* isolated from diseased chickens:

Antibacterial agents	*S		**I		***R	
	N0	%	No	%	No	%
Amoxicillin	1	25	2	50	1	25
Ampicillin	0	0	1	25	3	75
Chloram-phenicol	3	75	1	25	0	0
Cephalexin	3	75	1	25	1	25
Ciprofloxacin	1	25	2	50	1	1
Enrofloxacin	3	75	1	25	0	0
Neomycin	0	0	1	25	3	75
Gentamicin	4	100	0	0	0	0
Doxycycline	4	100	0	0	0	0
Norfloxacin	4	100	0	0	0	0
Erythromycin	0	0	1	25	3	75
Colistin	3	75	1	25	0	0

* S = Sensitive ** I = Intermediate *** R = Resistant

Table (9): The results of disc diffusion test on *E. coli* isolates.

Results of serological identification: Results of serological identification of *E. coli* isolates:

Serotype	No of isolates
O114 K90	3 isolates
O26 K60	2 isolates
O126 K71	2 isolates
O91 K -	one isolate
Total	**8 isolates**

Results of serological identification of *Salmonella spp* isolates:

Serotype	No of isolates
Salmonella Enteritidis	6 isolates
Salmonella Virchow	4 isolates
Total	**10 isolates**

DISCUSSION

In the present investigation 600 different samples were collected from diarrheic and apparently healthy broiler chickens in Fayoum governorate. The recovered bacterial isolates were ***E. coli*** (59.3%), *Proteus mirabilis* (14.8%), *Salmonella spp.* (5.2%), *Proteus vulgaris* (3.3), *Aeromonas hydrophila* (3.2%), *Klebsiella spp.* (2.5%) and *Pseudomonas spp.* (2.3 %).

E. coli was isolated in high incidence which agrees with **Khalid (*1990), Mukhopadhyaya and Mishra (1992), El-Gaber and El-Gohary (1995), Emad (1996), Mahmoud and Moussa (2000) and Abeer (2004)*** who isolated *E. coli* with incidences of 57.6%, 59.8, 59%, 62%, 60% and 55.6% respectively. While higher incidences of ***E. coli*** were recovered by ***El-Sukhon (1990), Sara et al. (1995), Salman (1999), Gomis et al. (2000) and Farghaly (2000)*** who recovered 67.7%, 100%, 73.3%, 67.2% and 72.9% isolation rates, respectively.

These variations may be attributed to the pathogenicity of ***E. coli*** for chickens which had been correlated with numerous extrinsic and intrinsic bird related factors and conditions. These extrinsic factors include environmental conditions, exposure to other infections agents, virulence of bacteria, levels and duration of exposure, while the intrinsic factors affecting susceptibility of the bird include age, route of exposure, active and passive immune status and bread of chickens ***(Deb and Harry, 1976; Gaven, 1978 and Suelam, 2003).***

Our study revealed also that *Salmonella spp*. Isolated with an incidence of 5.2% this result agree with ***Shouman and Moustafa (1972), Lu et al. (1986), Venkana et al. (1996), Jindal et al. (1999) and***

Mohamed (2003) who recovered *Salmonella* in incidences of 3.6 %, 4.4%, 6.3%, 5% and 4%, respectively. Lower recovery rates were obtained by ***Bayoumi et al. (1979), El-kady (1986), El-Gohary (1989) and Kim et al. (2003)*** who recovered ***Salmonella*** in incidences of 1.6%, 0.8%, 0.74% and 1.6%, respectively. Higher results obtained by ***Abd El-Galil et al. (1983), Emad (1996), EL-Morsi (1998), Mahmoud and Mousa (2000), Suelam (2003), Amen (2004), Rehan (2004) and Abeer (2004)*** who recovered *Salmonella* in incidences of 25%, 10%,12%, 9.17%, 9.8%, 18.8%, 12% and 18.8% respectively.

Aeromonas hydrophila was recovered in the present study in an incidence of 3.2 % which agree with that recovered by ***Glunder (1988)*** and ***Ahmed (2004)*** who recovered *A. hydrophila* in incidences of 3.6% and 2.33 %, respectively.

Proteus spp. were recovered in an incidence of 18.1% which is more or less similar to ***Taha (2002), Suelam (2003) and Abeer (2004)*** who isolated it with incidences of 15%, 15.5% and 14.9%, respectively, while lower rate was obtained ***with Sarma et al . (1985)*** (10.6 %) and higher rate was recovered by ***Mohamed (1994)*** (25.77%).

Klebsiella spp. were recovered in an incidence of 2.5% which is relatively in agreement with ***Abd El-Galil et al. (1983) Osman (1992) Abd El-Motelib El-Zanaty (1993) Taha (2002) and Suelam (2003)*** who isolated it in incidences of 3%, 4%, 4.8%, 4.3% and 3.4%, respectively. while lower rate was obtained by ***Flamer and Drewes (1988)***(0.6%) and higher rates were obtained by ***Niazi et al. (1981), Ann et al. (1982), Ali et al. (1984), Choudhury et al. (1993), Zakhary (1998) and Abeer (2004)*** who recorded isolation rates of 27.64%, 27%, 7%, 8.2% 29.1%, and 19.14%, respectively.

Pseudomonas spp. were recovered in an incidence of 2.3% which is in agreement with ***Awaad et al. (1981) and Osman (1992)*** who isolated it in incidences of 2.9% and 2%, respectively. Relatively in agreement with ***Castro et al. (1989) Younes et al. (1990) Choudhury et al. (1993)*** who isolated it in incidences of 5%, 4.9% and 4.7% respectively, while higher rates were obtained by ***Shahata et al. (1988) Venkanagouda et al. (1996) Emad (1996) Mahmoud and Moussa (2000) Shosha (2003) Suelem (2003) Abeer (2004)*** who recorded isolation rates of 18.2%, 6.06%, 8.7%, 6.7% 10%, 10.6% and 16.4%, respectively.

As ***E.coli*** is a normal inhabitant in the intestinal tract of birds so, its isolation from feces of broiler (diarrheic or apparently healthy) have no significance unless determination if it was pathogenic or non pathogenic could be achieved, For this purpose Congo red binding activity of ***E. coli*** isolates was determined in the present work. The results showed fundamental difference between the percentage of Congo red (CR) positive (red colored colonies) *E. coli* (pathogenic) (86%) and Congo red (CR) negative (white colored colonies) *E. coli* (non pathogenic) (14%).

The pattern of antibiotic susceptibility of the most prevalent intestinal pathogens was done *in vitro* and the obtained data revealed that *Aeromonas hydrophila* isolates were sensitive to gentamicin, doxycycline, norfloxacin, enrofloxacin chloramphenicol and ciprofloxacin. This is in agreement with ***Forbes et al. (1998), Kelley et al. (1998) and Altwegg (1999)*** and some whate agree with ***Ahmed (2004)*** but is in disagreement with the result given by ***El khashab and El yazed (2001).***

Salmonella isolates were sensitive to chloromphenicol, enrofloxacin, norfloxacin, colistin, ciprofloxacin, gentamycin, neomycin and doxycycline.

This results agree with ***Gyurov (1986), Wasniewski and Galazka (1992), Hoszowski et al. (1998) and Lakshmi et al. (2006)*** and is in disagreement with the result given by ***Hermans et al. (1996), Rzedzicid et al. (1997), Cormican et al. (2002) and Hernandez et al. (2002).***

E. coli isolates were sensitive to gentamycin, doxycycline and norfloxacin, chloramphenicol, cephalexin, enrofloxacin and colistin sulphate. This results agree with ***Ghosh (1987), Filali et al. (1988),(Khalid, 1990), Bebora et al. (1994), Gowda et al. (1996) and Vakani et al. (1997)*** and differ from those recovered by ***Cloud et al. (1985), Kaul et al. (1992), Amara et al. (1995) and Saenz et al. (2001).***

This variation in results could be due to intensive haphazard antibiotics therapy usually given by owners in most cases of bacterial infections in broiler chicken farms especially in Fayoum governorate.

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الملخص العربي

تعتبر الثروة الداجنة من أكثر الثروات الحيوانية توفيرا للبروتين الغذائي كمصدر حيواني وان من اخطر الأمراض التي تؤثر على هذه الثروة البكتريا المعوية التي تلعب دورا رئيسيا في نقص معدل التحويل الغذائي للطائر إلي جانب الخسائر المادية التي تنتج عن ارتفاع معدل الوفيات ومن هذا المنطلق تأتي هذه الدراسة كمحاولة مبسطة لإلقاء الضوء على ما يلي:

1. الكشف عن دور البكتيريا كعامل مساعد لارتفاع معدل الإسهال والنفوق في دواجن التسمين
2. التصنيف البيوكيميائي لتلك لمسببات مع الاستعانة بنظام API 20 E في التصنيف البكتيري للمعزولات.
3. التصنيف السيرولوجى لبعض من هذه المعزولات.
4. إيجاد أفضل المضادات البكتيرية لكي تستخدم في العلاج والمساعدة في وضع حد لهذه المشكلة.

أجريت هذه الدراسة في محافظة الفيوم عن طريق اخذ العينات من مزارع منتشرة في مدن مختلفة بالمحافظة هي : ابشواي- اطسا- سنورس- طامية حيث تم تجميع 600 عينة مختلفة من فتحة المجمع ومن الكبد والمرارة والقلب والأمعاء من دواجن التسمين في أعمار مختلفة والتي أعطت 530 عينة ميكروبية لميكروبات مختلفة وكانت العينات عبارة عن 500 عينة من طيور بها علامات الإسهال المعوي و 100 عينة من طيور سليمة ظاهريا وقد أوضح الفحص البكتيريولوجي لهذه العينات النتائج التالية:

- اظهر الفحص البكتيري سيادة الميكروب القولوني الايشريشياكولاي على الميكروبات الاخري وكانت نسبة عزلة 59.3% منها 53.3% من الطيور المصابة بالإسهال و 6% من الطيور السليمة ظاهريا.

- تـــوالت الميكـــروبات البكتيرية بعد ذلك فتم عزل ميكروب البروتيس ميرابيليس بنسبة 14.8% مـــنها 11.6% من الطيور المصابة بالإسهال و 3.2% من الطيور السليمة ظاهريا و ميكروب السالمونيلا بنسبة 5.2% وميكروب الايروموناس هيدروفيلا بنسبة 3.2% و ميكروب الكليبسيلا بنـــسبة 2.5% وميكروب السودوموناس بنسبة 2.3% وكانت كلها من طيور مصابة بالإسهال وميكـــروب البـــروتيس فولجاريز بنسبة 3.3% منها 2.5% من الطيور المصابة و 0.8% من الطيور السليمة ظاهريا.
- وقـــد اظهر الفحص البكتيري لهذه الطيور وجود 85 حالة من الميكروبات المختلطة التي تجمع بين أكثر من ميكروب واحد في الطائر
- ويوضح الفحص البكتيري لهذه الميكروبات أن الميكروب القولوني هو صاحب الحظ الأوفر فى إحـــداث المشاكل دونا عن باقي الأنواع ولكن نظرا لتواجده الطبيعي في الأمعاء من الضروري فصل تصنيف هذه العترة إلي مرضية أو غير مرضية ولهذا تم استخدام صبغة الكونجو الأحمر لهذا الغرض. وقد أظهرت النتائج أن نسبة وجود الميكروب القولوني الممرض بطيور دواجن التسمين هي 86% (مستعمرات حمراء) والغير ممرض وهي 14% (مستعمرات بيضاء).
- تـــم اســـتخدام نظام API 20 E لتصنيف البكتريا المعزولة وهو من الطرق الدقيقة والسريعة للتصنيف البيوكيميائي .
- تم إجراء التصنيف السير ولوجي ل8 عترات من الميكروب القولوني وكانت النتيجة كالتالي :
  - ثلاثة عترات O114 K90.
  - عترتان O26 K60.
  - عترتان O126 K71.
  - عترة واحدة – O91 K.
  - وباقي العترات لم يمكن تصنيفها.

- كما تم تصنيف عشرة عترات من السلمونيللا للحصول علي نوعين هما :
  - 6عترات سالمونيللا انتيرتيدس.
  - 4عترات سالونيللا فيرشاو.
  - وباقي العترات لم يمكن تصنيفها.
- كما تم فحص كل من ميكروبالابرومونس والسالمونيلا انتيرتيدس و والسالمونيلا فيرشاو والإيشرشياكولاي لإختبار الحساسية وقد اتضح ان ميكروب الايرومونساس كان كل من الجنتاميسين والدوكسيسيكلين والنورفلوكساسين والإنروفلوكساسين هم اقوي المضادات البكتيرية 100% ثم السيبروفلوكساسين والكلورامفينيكول 75% ثم كان السيفاليكسين والكولستين 50% متوسي الحساسة اما المقاومة فكانت لكل من الاموكسيسيلين والامبيسيللين والنيومايسين والإريثرومايسين.
- بينما كان ميكروب السلمونيللا انتيرتيدس شديد الحساسيه 100% لكل من الجنتاميسين والنورفلوكساسين والإنروفلوكساسين والسيبروفلوكساسين والكلورامفينيكول والكولستين وكانت 75% مع النيومايسين والدوكسيسيكلين أما فىحالة السيفالكسين فكانت متوسطة الحساسيه 50% وكانت المقاومه مع الاموكسيسيلين والامبيسيللين والإريثرومايسين.
- أما في حالة ميكروب السلمونيللا فيرشاو فكان شديد الحساسيه 100% لكل من الجنتاميسين والنورفلوكساسين والإنروفلوكساسين والسيبروفلوكساسين والكلورامفينيكول والنيومايسين والكولستين وكانت 75% مع الدوكسيسيكلين والسيفالكسين اما فى حالة الاموكسيسيلين فكانت متوسطة الحساسيه50% وكانت المقاومه مع الامبيسيللين والإريثرومايسين.
- وفي حالة ميكروب الإشيرشيا كولاي فكان شديد الحساسيه 100% لكل من الجنتاميسين والنورفلوكساسين و الدوكسيسيكلين وكانت 75% مع الإنروفلوكساسين والكلورامفينيكول والكولستين والسيفالكسين. اما فى حالة السيبروفلوكساسين والاموكسيسيلين فكانت متوسطة الحساسيه50% وكانت المقاومه مع الامبيسيللين والإريثرومايسين والنيومايسين.