BACTERIAL CAUSES OF FIN ROT IN SOME FRESH WATER FISHES.

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170 naturally infected fishes
(90 tilapia spp.,
50 Clarias lazera
and 30 Commen carp)
with fin rot
revealed clinically progressive erosions, congestion and hemorrhages of the body fins especially the caudal and dorsal fins with edema and sloughing in some cases .

naturally infected fishes
revealed the presence of 468 bacterial isolates related to 8 bacterial genera and species .

A. hydrophila (198)

P. fluorescens (102)

Streptococcus sp.(36)

F. columnaris (36)

Klebsiella sp. (48)

E. coli (24)

Proteus sp(12)

And Shigella sp. (12)

Table (1): Collective data of bacterial isolates from examined naturally infected fish species.

Fish species	No. of infected fishes with fin rot	Aeromonas species	Pseudomonas species	Flecibacter species	Klebsiella species	Streptococ species	E. Coli	Proteus species	Shegella	Total No.	%
Tilapia	90	105 (42.68%)	54 (21.95%)	19 (7.73%)	25 (10.16%)	18 (7.32%))	10 (4.06%)	8 (3.25%)	7 (2.85%)	246	18.1
Clarias	50	59 (43.38%)	30 (22.06%)	11 (8.09%)	14 (10.29%)	9 (6.62%)	6 (4.41%)	3 (2.21%)	4 (2.94%)	136	10.0
Carp	30	34 (39.53%)	18 (20.93%)	6 (6.98%)	9 (10.47%)	9 (10.47%)	8 (9.30%)	1 (1.16%)	1 (1.16%)	86	6.3
Total	170	198 (42.3)	102 (21.8)	36 (7.7)	48 (10.3)	36 (7.7)	24 (5.1)	12 (2.6)	12 (2.6)	468	34.4

N. B.: % was calculated according to total number of isolates of each species.
Total No. was calculated according to the total number of the samples.

Table (2): Distribution of Bacterial isolates among various tissues and organs of naturally infected fish species with tail and fin rot.

Isolates	Fish	Total	Fin & tail lesions		Liver		Kidney		Gills		Spleen		Muscle		Ovaries		Ascitic fluid	
	Species	isolates	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
A. hydrophila	Tilapis	105	29	37.62	19	18.1	9	8.59	18	17.14	6	5.70	13	12.37	7	6.67	4	3.81
	Clarias	59	15	25.42	12	20.39	5	8.46	11	18.64	4	6.77	6	10.17	4	6.77	2	3.39
	Carp	34	10	29.41	5	14.71	4	11.76	7	20.59	2	5.88	5	14.71	1	2.94	-	-
Ps. fluorscences	Tilapis	54	16	29.63	9	16.67	16	29.63	3	5.56	-	-	3	5.56	7	12.96	-	-
	Clarias	30	10	33.33	6	20.00	9	3.00	2	6.67	-	-	1	3.33	2	6.67	-	-
	Carp	18	4	22.22	3	16.67	5	27.78	1	5.56	-	-	2	11.11	3	16.67	-	-
F. columnaris	Tilapis	19	6	31.58	-	-	6	31.58	7	36.84	-	-	-	-	-	-	-	-
	Clarias	11	4	36.36	-	-	5	45.45	2	18.18	-	-	-	-	-	-	-	-
	Carp	6	2	33.33	-	-	1	16.67	3	50.00	-	-	-	-	-	-	-	-

Fig. (1) Tilapia nilotica showing progressive erosions of body fins, especially caudal and ventral fin, focal to diffuse necrosis of muscle and detachment of scales.

Fig. (2) Tilapia nilotica showing erosions of body fins, detachment of scales and skin congestion.

Fig.(3) Clarias lazera showing erosions and congestion of the body fins.

The postmortem changes of naturally infected fishes were abdominal ascitis, enlargement and congestion of the liver, kidneys, spleen and intestine with distension and congestion of the gall bladder.

Fig.(4) Common carp showing congestion of internal organs specially liver as well as inflamed muscle

Fig. (5)Common carp showing detachment of scales, erosion of caudal fin, congestion of internal organs & bloody ascitic fluid.

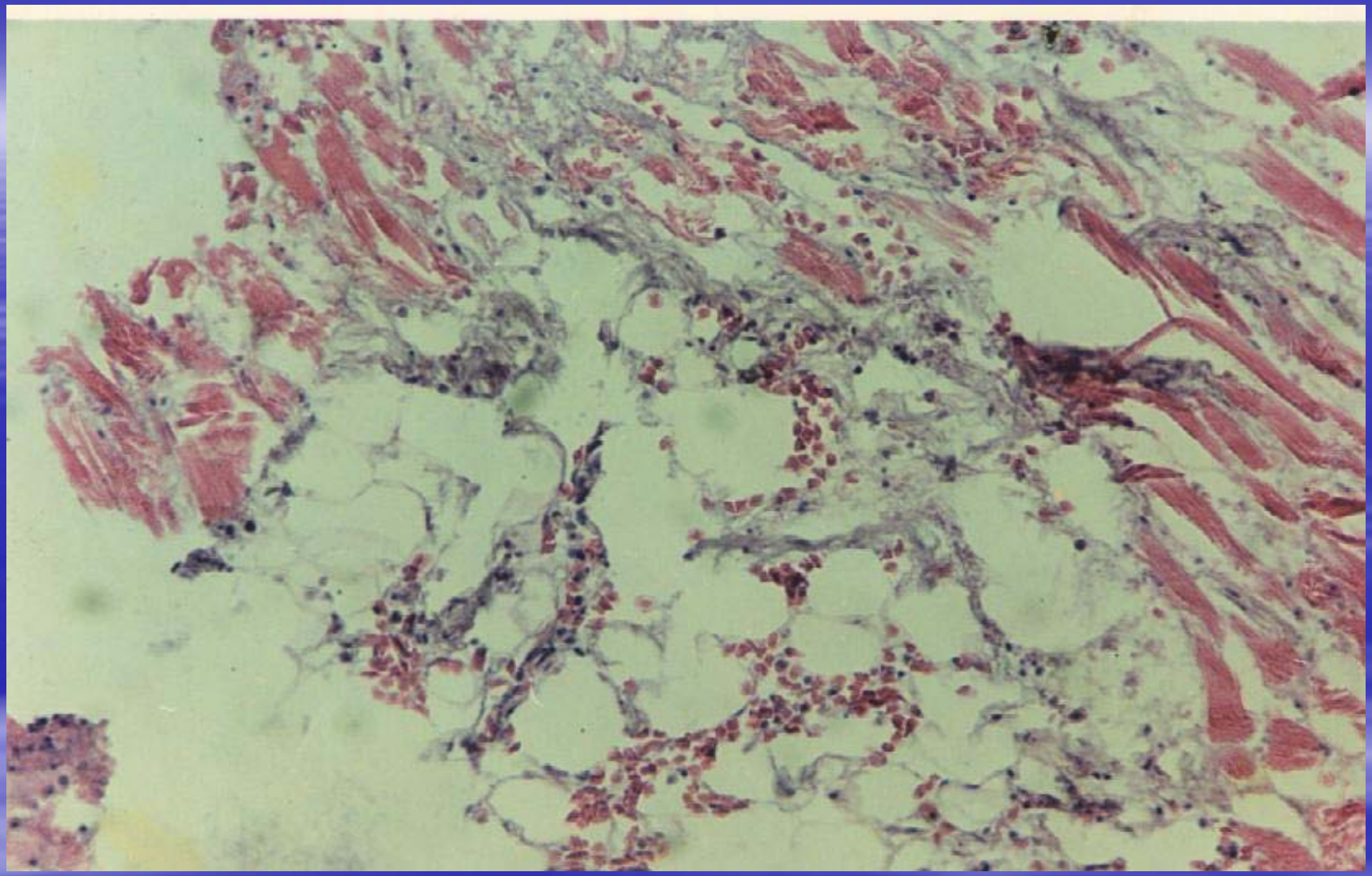

Fig. (6) Muscles showing extensive necrosis and focal replacement to the necrotic muscles by edema, hemorrhage, and mononuclear leukocytes

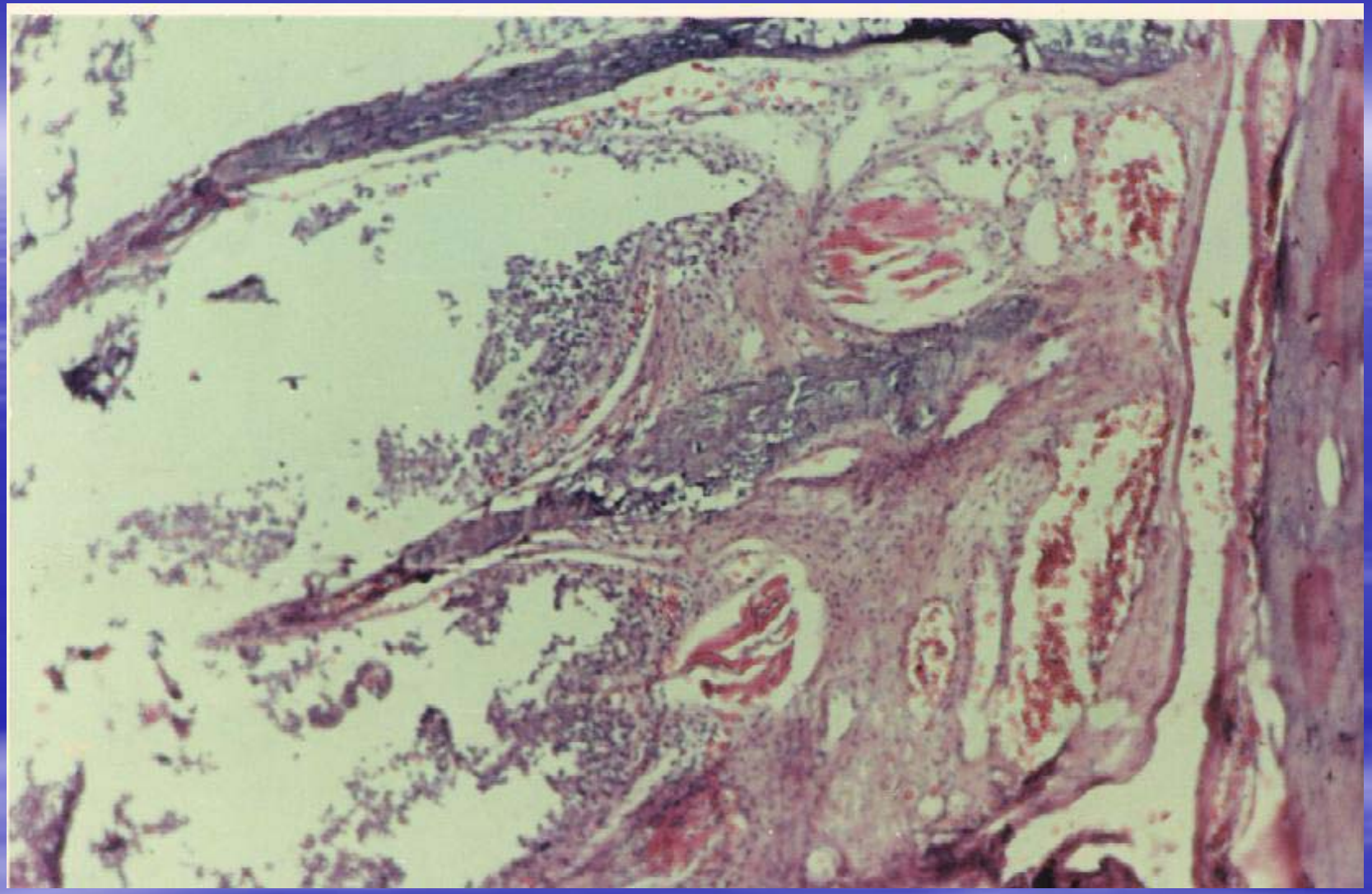

Fig. (7) Gills showing edema, congestion, and hemorrhage in the gill arch, necrosis and desquamation in the gill lamellae along with mononuclear leukocytic infiltration

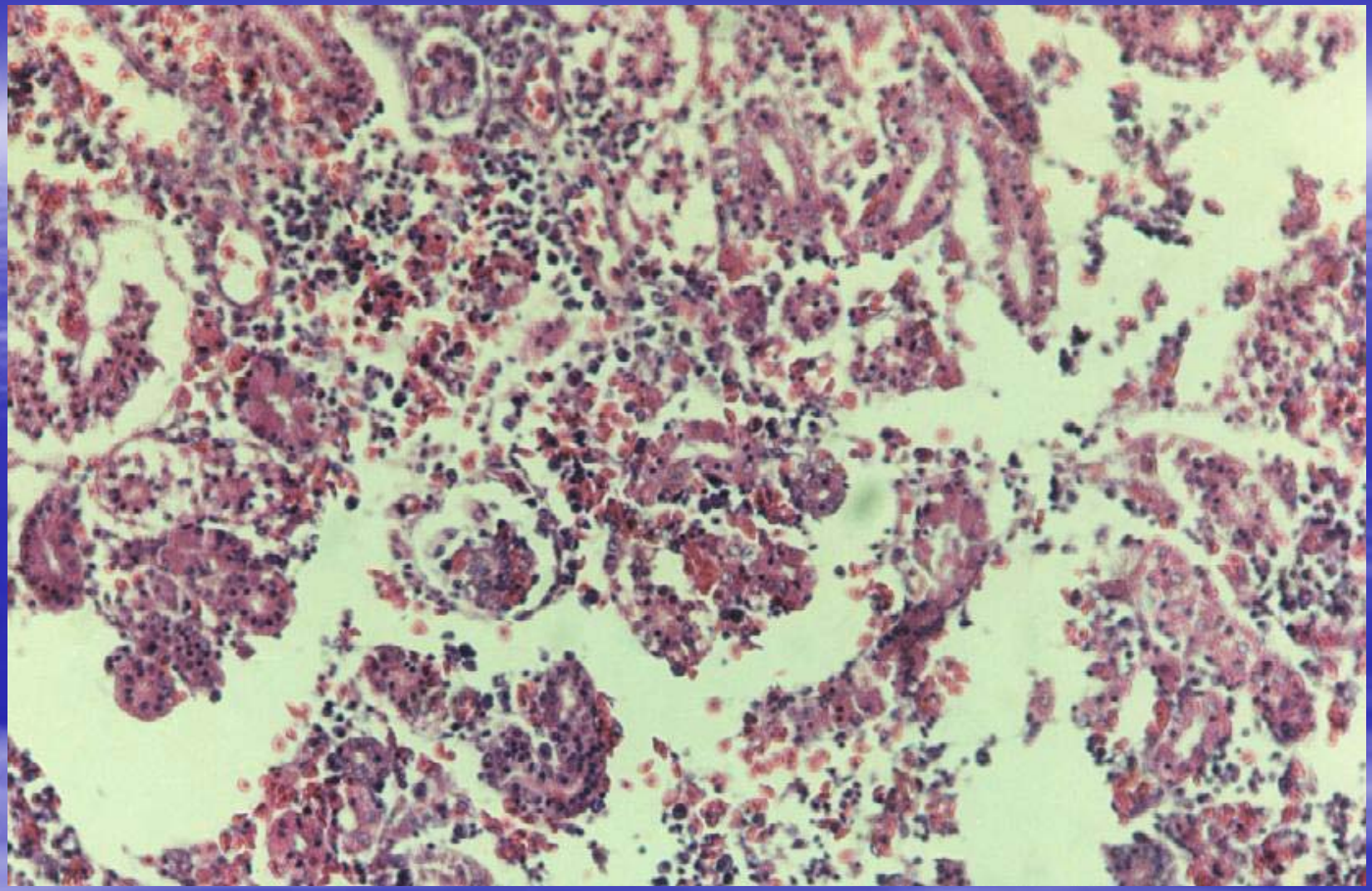

Fig. (8) Kidney showing wide spread necrosis of the renal tubules along with interstitial edema, hemorrhage and mononuclear leukocytes

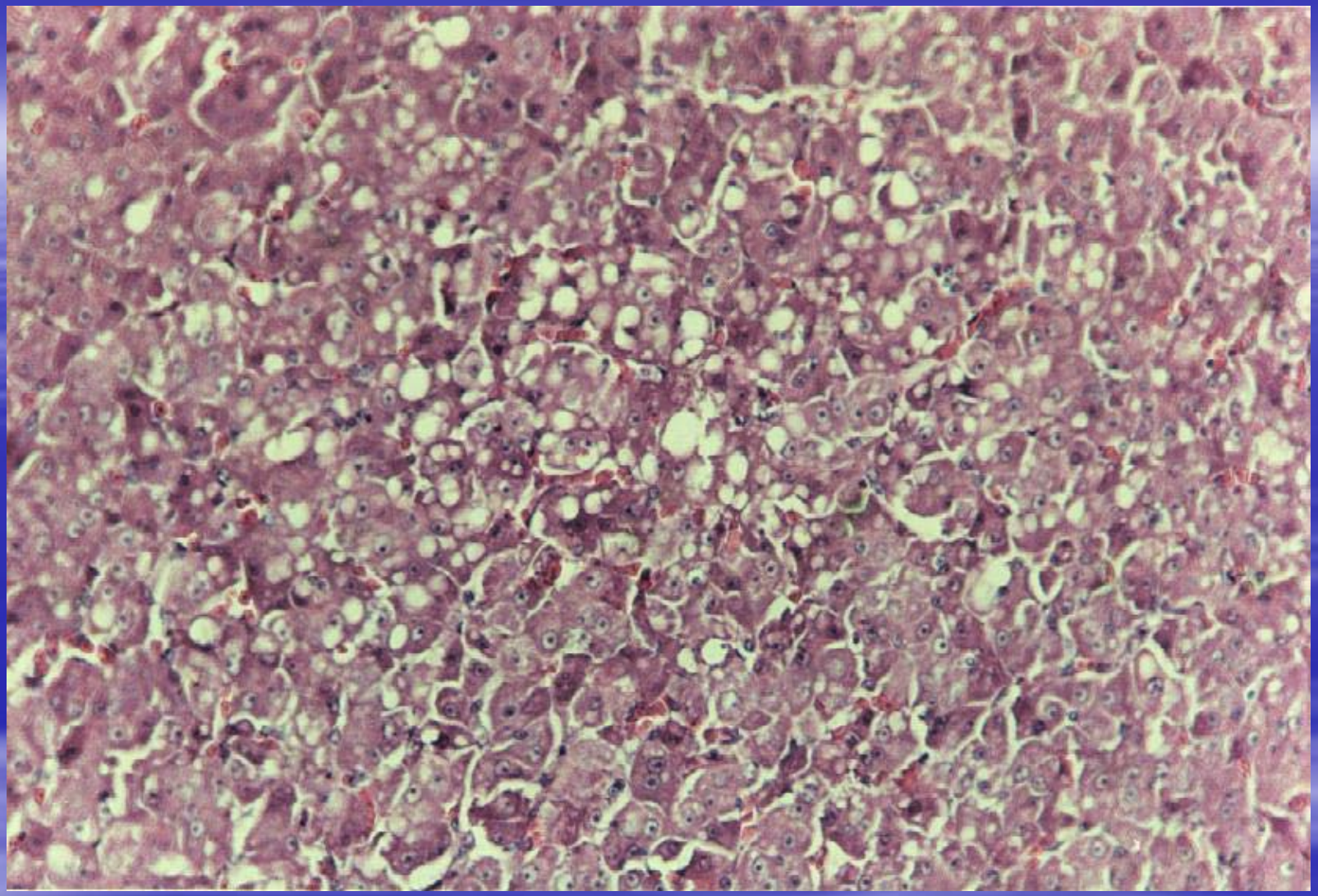

Fig. (9) Liver showing extensive vacuolar degeneration and focal areas of coagulative necrosis

The pathogencity of isolated strains revealed that

A.hydrophila **appeared to be highly virulent (87-100%) mortality in injected groups followed by *P .fluorescens* (50%) and *F .columnaris* (37.5%)**

Table (3):Route of infection and pattern of mortality in armout catfish experimentally inoculated with fish pathogenic isolated bacteria.

Fish group	No. fish	Infected organism	Route of inf.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total		
																			No.	%	
I	8	A. ydrophila	I/P	-	-	-	-	3	2	-	-	-	1	-	1	-	1	-	8	100	
II	8	P.fluorescens	I/P	-	-	-	-	-	-	-	1	-	-	-	1	1	-	1	4	50	
III	8	F. olumnaris	I/M	-	-	1	-	-	-	-	-	-	1	-	-	-	1	-	3	37.5	
IV	8	A. ydrophila & P.fluorescens	I/P	-	-	-	1	1	2	1	1	-	1	-	-	-	-	-	7	87.5	
V	8	A. ydrophila & F.columnaris	I/M	-	-	-	-	-	1	2	2	1	-	-	1	-	1	-	8	100	
VI	8	P.fluorescens & F.columnaris	I/P	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	2	25	
VII	8	A. ydrophila & P.fluorescens & F.columnaris	I/M	-	-	-	-	2	-	1	1	1	-	-	-	1	-	1	7	87.5	
VIII	8	Sterile broth	I/P	-	-														-	-	
IX	8	Cytophaga	I/M	-	-														-	-	

8 fish inoculated

Sensitivity test of isolated strains showed that
kanamycin and nalidexic acid were the drugs of choice used for control and treatment of fin rot disease.

Table(4): Antibiotics sensitivity of Bacteria isolated from naturally infected fish

Isolates	Fish Species	Antibiotics											
		AMX	C	CL	D	E	K	NA	N	S	G	TE	SXT
A. hydrophila	(Tilapia (105 isolates	+2	+2	+3	+3	+1	+4	_+4	+3	+1	-	+3	+2
	(Claris (59 isolates	+1	+2	-	+1	+1	+3	+4	+3	+3	-	+3	+3
	(Carp (34 isolates	+2	+2	+1	+2	+1	+4	+4	+4	-	-	+3	+1
Ps. fluorscences	(Tilapia (54 isolates	-	+2	+2	+2	-	+2	+4	+4	+3	+2	+2	+3
	(Claris (30 isolates	+2	+2	+2	+1	+1	+1	+3	+4	+3	+1	+2	+3
	(Carp (18 isolates	+1	+2	+2	+1	-	+2	+3	+3	+2	+2	+3	+2
F. columnaris	(Tilapia (19 isolates	+1	-	+1	-	-	+4	+4	-	+1	-	+4	+2
	(Claris (11 isolates	-	+1	-	+1	-	+3	+4	+1	+1	-	+4	+1
	(Carp (6 isolates	-	-	-	-	-	+4	+4	-	+1	-	+4	+2

AMX= Amoxicillin
C= Chloramphincol
CL= Colistin
D= Doxycycline
E= Erythromycin
K= Kanamycin
N= Neomycin
S= Streptomycin
G= Sulfonamides
NA= Nalidixic acid
SXT= Trimethoprim sulfonamides
Te= Tetracycline

Thank You